S. Hrg. 98-780, pt. 9

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1983

HEARINGS

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL TRADE,
FINANCE, AND SECURITY ECONOMICS

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

NINETY-EIGHTH CONGRESS

FIRST SESSION

PART 9

EXECUTIVE SESSIONS

JUNE 28 AND SEPTEMBER 20, 1983

Printed for the use of the Joint Economic Committee

U.S. GOVERNMENT PRINTING OFFICE
29-570 O WASHINGTON : 1984

J841-22

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ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1983

TUESDAY, JUNE 28, 1983

Congress of the United States,
Subcommittee on International Trade, Finance, and
Security Economics of the Joint Economic Committee,
Washington, D.C.

The subcommittee met, pursuant to notice, in executive session, at 10 a.m., in room SD-138, Dirksen Senate Office Building, Hon. William Proxmire (vice chairman of the subcommittee) presiding.

Present: Senator Proxmire and Representative Lungren.

Also present: Richard F. Kaufman, assistant director-general counsel; Ron Tammen, administrative assistant to Senator Proxmire; and Charles H. Bradford, assistant director.

OPENING STATEMENT OF SENATOR PROXMIRE, VICE CHAIRMAN

Senator Proxmire. I am pleased to welcome Maj. Gen. Schuyler Bissell, the Deputy Director of the Defense Intelligence Agency, to the opening of this year's hearings on the allocation of resources in the Soviet Union and China.

10TH YEAR OF ANNUAL HEARINGS

This is the 10th year of this annual exercise, which began in 1974.

I believe our hearings and the information we have been able to put into the public record have proven to be very valuable. They have enriched our understanding of the economic trends in the two largest Communist nations, and they have helped put forth in a candid and comprehensive manner the estimates and judgments of the intelligence community.

The views of the spokesmen for the intelligence agencies have often provoked comments from others in public and private circles and have sparked discussions in Congress and the media. The published hearings have been used in innumerable scholarly and popular writings. The hearings have thus achieved one of our primary objectives; namely, broadening and increasing the quality of the public dialog about the Soviet and Chinese economies.

Our efforts would not have been possible, at least in their present form, without the active cooperation of the Central Intelligence Agency and the Defense Intelligence Agency. We are most grateful for that cooperation and the high degree of professionalism the agencies have brought to bear on the hearings.

I am happy to note that I have chaired each of the hearings in this series for the last 10 years, assisted by Richard Kaufman of the committee staff, who has been responsible for their planning, coordination, and their final publication.

In this morning's proceedings I would like to focus our attention on two important Soviet trends, although there are many other areas of importance that will be discussed.

SOVIET ECONOMY

The first concerns the state of the overall Soviet economy and its prospects. Western experts have long noted the downward trend of Soviet GNP growth rates since the 1950's. By the late 1970's the Soviet growth was far below the postwar average. Since 1976 it has averaged about 2 percent.

Experts draw different conclusions about the slowdown. Few, if any, see a return to the high growth rates of the 1950's. Some believe the slowdown will grow worse. Most, I would say, expect growth to continue in the 1- to 2-percent range.

There has been a tendency for some Government spokesmen to describe the Soviet company as one in crisis, a basket case in danger of collapse. My view is that this exaggerates the seriousness of Soviet economic problems, which are serious enough without exaggeration. I do not think it serves a useful purpose to magnify their economic difficulties out of proportion, and I think it is counterproductive to deceive ourselves about the strength as well as the weakness of the Soviet economy.

I sense that in recent months a new consensus has been formed within our Government that views Soviet economic problems as serious but not necessarily fatal. According to this view the Soviets will likely muddle through the next few years with growth rates of about 2 percent, and there could be some improvement if certain reforms are made.

SOVIET DEFENSE SPENDING

The second issue concerns the growth of Soviet defense in the past 5 years or so.

In February of this year the CIA concluded that Soviet military procurement has been just about level; that is, it has not gone up or down since 1976. Further, the absence of growth and procurement has slowed the growth of total Soviet defense to about 2 percent annually.

That slowdown is reflected in one of the tables you have prepared for us, and I have included it in this statement so as to call attention to it. The table shows that while upward growth continues in Soviet defense programs, there has been a gradual slowing of the rate of growth. It was 4 percent in the early 1970's; 3 percent in the mid-1970's; and now it is a 2-percent growth rate.

This trend roughly corresponds to the trend for Soviet GNP during the 1970's and raises many questions about the causes of the slowdown, the relationship of the defense sector to the rest of the economy and its relevance to détente and the arms negotiation.

General Bissell, you may proceed as you wish. Then we will ask you questions.

STATEMENT OF MAJ. GEN. SCHUYLER BISSELL, USAF, DEPUTY DIRECTOR, DEFENSE INTELLIGENCE AGENCY, ACCOMPANIED BY JEROME WEINSTEIN, CHIEF, INDUSTRIAL ECONOMIC SECTION; JOHN B. MALLON, CHIEF, ASIAN ECONOMIC SECTION; NORBERT MICHAUD, CHIEF, STRATEGIC DEFENSE ECONOMICS BRANCH; LLOYD CORNING, CHIEF, ENERGY BRANCH; SAM CRAWFORD, CHIEF, MILITARY PRODUCTION BRANCH; AND LT. COL. DEAN DICKERSON, USAF, LEGISLATIVE LIAISON

General Bissell. Thank you very much, Mr. Chairman.

My testimony today will cover the Defense Intelligence Agency's assessment of Soviet and Chinese military economic performance and trends. It will highlight the key points of the unclassified background paper which was provided to you earlier. This testimony is presented at the secret level.

[Slide.]

DIA BRIEFING FOR THE SUBCOMMITTEE ON INTERNATIONAL TRADE, FINANCE, AND SECURITY ECONOMICS OF THE JOINT ECONOMIC COMMITTEE OF CONGRESS

G0257.1

General Bissell. The leadership of both the Soviet Union and the People's Republic of China has confronted a range of economic issues, including serious resource constraints, which have impacted on national defense needs. Each country has reacted to these economic issues in divergent ways. I will begin with the Soviet resource allocations and trends.

[Slide.]

STRATEGIC RESOURCE ALLOCATIONS IN THE SOVIET UNION AND CHINA IN THE 1980's

G0258.1

General BISSELL. Last year we portrayed a Soviet economy confronted with serious pressures, nonetheless maintaining growth of the defense sector with performance in some other sectors continuing on a downward trend. That picture has not changed. However, the accession of Yuriy Andropov to the position of General Secretary following the death of Leonid Brezhnev in November 1982 appears to have created a new environment, one in which the leadership is more willing to acknowledge the scope and nature of the economic problems, and appears more willing to accept the necessity of limited change as a precondition to improved overall economic performance.

[Slide.]

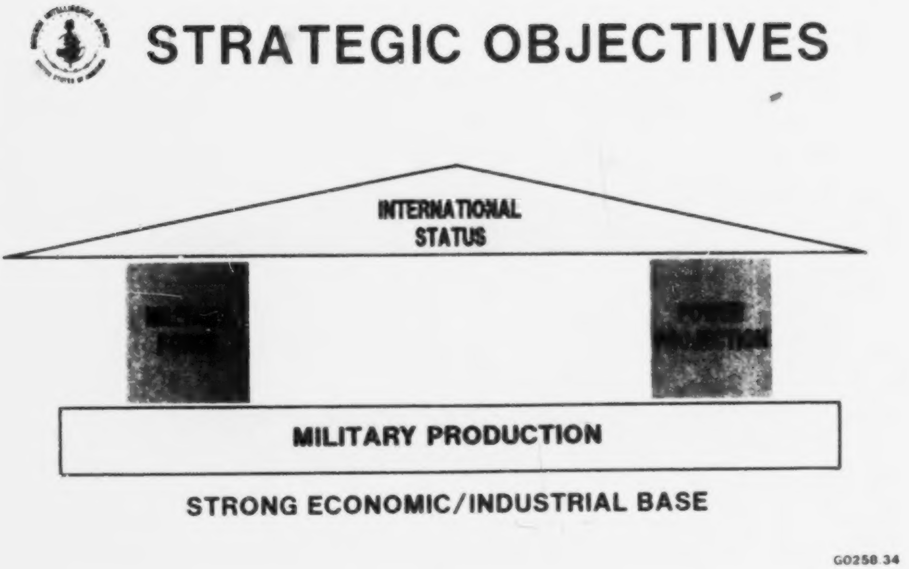
PROSPECTS FOR DEFENSE GROWTH IN A CHANGING ECONOMIC ENVIRONMENT

- NEW ENVIRONMENT
  - RECOGNIZING PROBLEMS
  - CONSIDERING CHANGES

STRATEGIC ECONOMIC OBJECTIVES

General BISSELL. It is important to note, however, that the leadership's strategic economic objectives have not changed. A strong economy with a vigorous industrial base continues to be essential to provide the Soviet Union with its military requirements for achieving strategic superiority and to permit the projection of power and influence throughout the world, including Third World nations.

[Slide.]



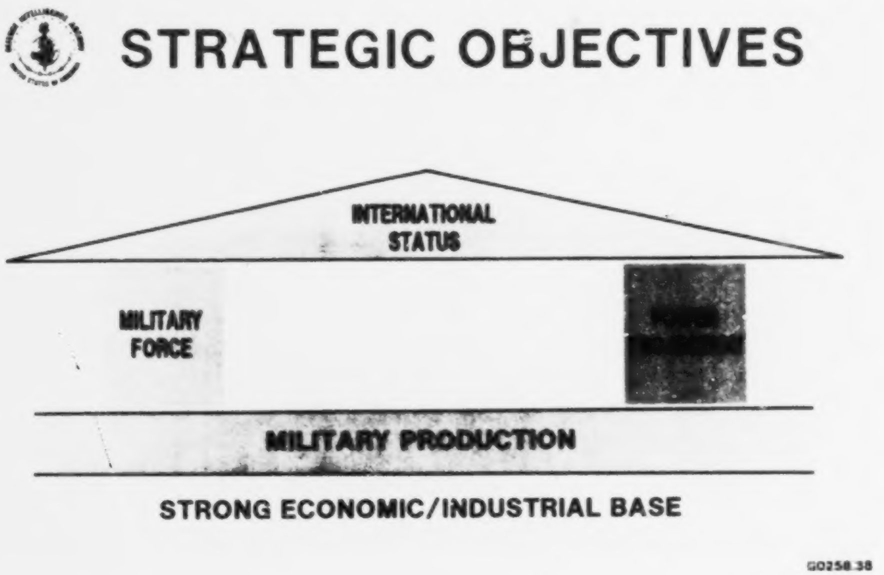
STRATEGIC OBJECTIVES

INTERNATIONAL
STATUS
MILITARY PRODUCTION
STRONG ECONOMIC/INDUSTRIAL BASE
G0258.34

DEFENSE INDUSTRIAL BASE

General BISSELL. In pursuit of these national objectives, the Soviet Union has developed a massive defense industrial base. Production over the last 15 years has experienced growth rates which have far exceeded the growth of Soviet industry and of the entire economy.

[Slide.]



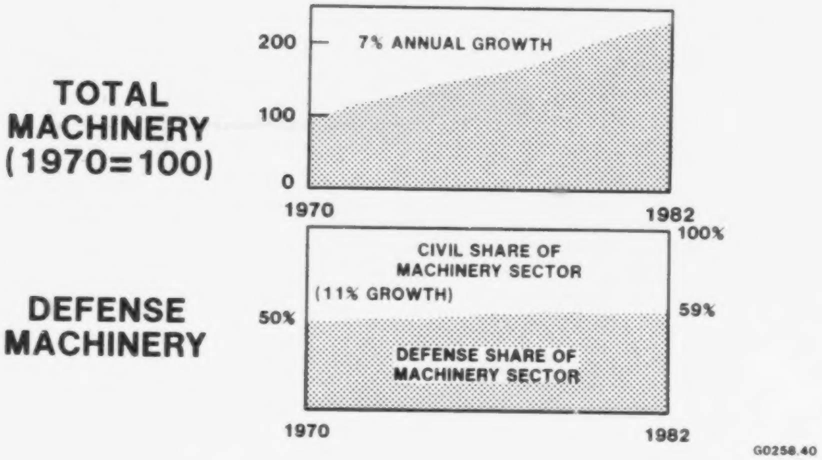
STRATEGIC OBJECTIVES

INTERNATIONAL
STATUS
MILITARY
FORCE
MILITARY PRODUCTION
STRONG ECONOMIC/INDUSTRIAL BASE
G0258.38

General BISSELL. According to Soviet data, the machinery sector of industry, which produces military material and producer and consumer durables, is growing faster than and represents an increasing share of industry as a whole. In the machinery sector the defense portion grew faster than the civil portion, and as a result represents an increasing share of machinery output as well as employment. Additionally, output per worker, a measure of labor's efficiency, is growing more rapidly in the defense machinery sector than in the civil machinery sector.

[Slide.]

TOTAL MACHINERY AND DEFENSE MACHINERY GROWTH



General BISSELL. Corresponding to the growth in output and labor force, the productive capacity of defense industry, as measured by the size of the final assembly facilities for weapon systems, expanded by more than [security deletion] million square meters since 1970, or at a rate of about 3 to 4 percent annually.

Such physical plant expansion is generally indicative of plans to produce either greater quantities of weaponry or weapon systems of such increased sophistication that additional floor space is required to maintain capacity. The enlarged production capacity also provides the Soviets the option to accelerate defense production quickly.

Senator PROXMIRE. General, would you go back to that previous table.

What is the plus [security deletion]? What do they represent?

General BISSELL. This is in millions of square meters.

Senator PROXMIRE. Does that indicate what kind of proportionate or percentage increase?

General BISSELL. That is the measure of the relative growth since 1970.

Senator PROXMIRE. That is just an absolute square meter measure?

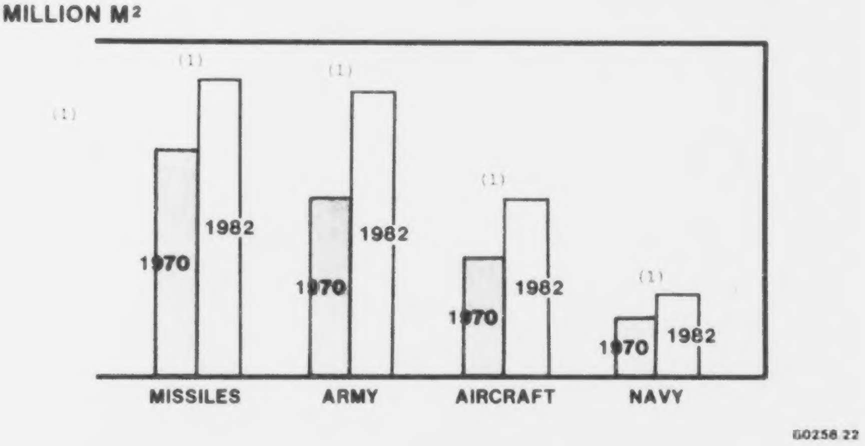
General BISSELL. Yes, sir.

Senator PROXMIRE. There is no indication of whether that is a 2-percent or a 10-percent or a 20-percent increase?

General BISSELL. No, sir. The percent that we referred to merely talks to the overall expansion from the period since 1970 of how many square meters they had at the time versus what we estimate their total capacity is now.

[Slide.]

GROWTH OF SOVIET MILITARY PRODUCTION FACILITIES
1970-1982
(IN MILLION SQUARE METERS OF FLOORSPACE)



(1) Security deletion.

General BISSELL. Most military industrial facilities normally operate substantially below their actual capacity, suggesting that should they find it necessary to do so output of military material could be increased without additional investments for new capacity.

[Slide.]

(A)

SOVIET MILITARY INDUSTRIAL CAPACITY UTILIZATION

	1982 OUTPUT	(1)
TANKS	2,500	
FIGHTER AIRCRAFT	770	
ICBMs	175	
SUBMARINES	8	

*BASED ON PROVEN OUTPUT FOR PRESENT PROGRAMS: OTHER BUILDING WAYS/FACILITIES MIGHT BE MADE AVAILABLE.

G0258.14

(1) Security deletion.

MILITARY RESEARCH AND DEVELOPMENT

General BISSELL. In addition to the high levels of growth in defense ministries and the significant expansion of military production facilities requiring large capital investments, there are considerable outlays being made in military reseach and development. It is currently estimated that the number of new weapon systems and major modifications to be developed and introduced during the decade of the 1980's exceeds the number of systems introduced in either of the previous two decades. A modification is defined as major when it significantly alters the performance of a piece of equipment or changes its mission.

[Slide.]

SAMPLE OF NEW MAJOR WEAPON SYSTEMS UNDER DEVELOPMENT DURING THE 1980's

	NEW	MAJOR MOD
● AIRCRAFT:		
● FIGHTERS		
● BOMBERS		
● NAVAL SYSTEMS:		
● SUBMARINES		
● MAJOR SURFACE COMBATANTS		
● MINOR SURFACE COMBATANTS	(1)	(1)
● GROUND FORCES:		
● FIELD ARTILLERY		
● TANKS		
● MISSILES:		
● SAMs		
● ICBMs		
● CRUISE		

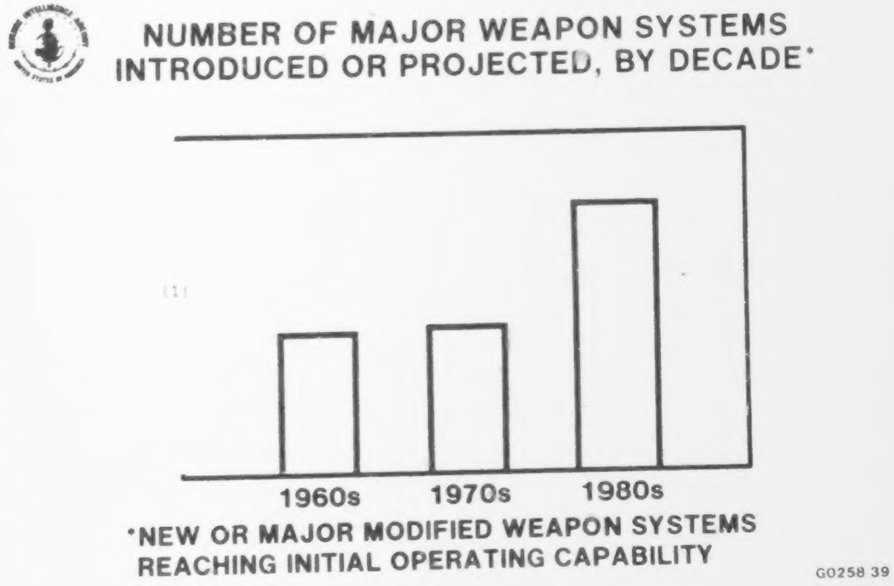
G0258 18

(1) Security deletion.

General Bissell. The results of this research and development effort in areas such as automated controls, computerization, structural materials, and signature reduction technology are now being incorporated into the new Soviet weapon systems. Many other systems are currently under development and are expected to reach initial operating capability by the end of the 1980's. These new weapon systems many of which represent an entirely new generation of technologically advanced weaponry, are larger, more complex and sophisticated, and possess significantly greater capabilities than the systems they are replacing.

[Slide.]

(A)



NUMBER OF MAJOR WEAPON SYSTEMS INTRODUCED OR PROJECTED, BY DECADE*

*NEW OR MAJOR MODIFIED WEAPON SYSTEMS REACHING INITIAL OPERATING CAPABILITY

G0258 39

(1) Security deletion.

MILITARY PRODUCTION LEVELS

General BISSELL. The production of military materiel over the past years has remained at extremely high levels. For many weapon systems production has increased. In some cases, substantially. Shown here are some of the various types of equipment for which production increased during the last 5 years.

[Slide.]

Ⓐ

SOVIET MILITARY PRODUCTION INCREASES (1978-1982)

EQUIPMENT TYPE	1978	1979	1980	1981	1982
● INFANTRY COMBAT VEHICLES	2,800	2,600	3,200	3,200	3,300
● TOWED ARTILLERY	1,400	1,500	1,400	1,600	1,700
● ANTI-SHIP CRUISE MISSILES	900	900	1,000	1,000	1,000
● ANTI-TANK GUIDED MISSILES (THOUSANDS)	35	40	45	60	62.5
● ARTILLERY-TYPE ROCKET LAUNCHERS	550	600	700	700	700

G0258 17

General BISSELL. For some other systems, while production has shown some year-to-year fluctuations, the long-term pattern has been relatively constant, showing little or no change in production levels. Some examples of these are shown here.

[Slide.]

SOVIET MILITARY PRODUCTION - LEVEL OR MINOR FLUCTUATIONS (1978-1982)

EQUIPMENT TYPE	1978	1979	1980	1981	1982
● MINOR SURFACE COMBATANTS	50	55	65	45	55
● NAVAL SUPPORT SHIPS	5	7	8	5	4
● LONG-RANGE BOMBERS	30	30	30	30	30
● ASW AIRCRAFT	10	10	10	10	10
● COMBAT CAPABLE TRAINERS	50	25	25	25	25
● HELICOPTERS	650	750	750	750	750
● SRBMs	250	300	300	300	300
● SAMs (THOUSANDS)	53	53	53	53	53
● BALLISTIC MISSILE SUBMARINES	2	2	2	2	1

G0258 18

General BISSELL. Over the same period production of several types of weapon systems has declined slightly. Shown here are some of these examples.

Senator **Proxmire**. Do you make an overall judgment based on these three categories, the increase, the stable and declining production? Or are they too disparate to make that kind of comparison?

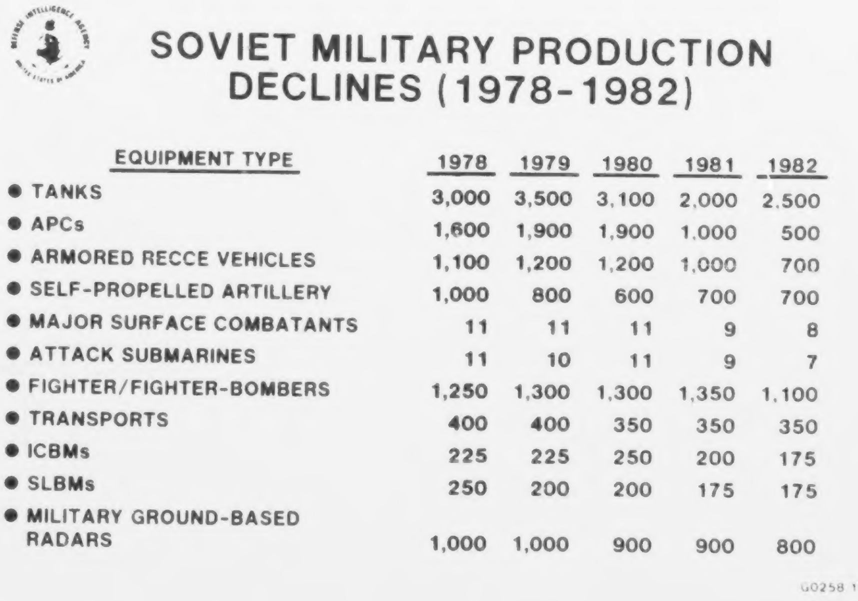
General **Bissell**. I think our impression is that these are subject to change, depending upon various factors that influence the R&D and production cycle and replacement cycle. Some have been relatively stable over time, but there are others that have had a tendency to decline and others that have had a tendency to increase, showing perhaps a different emphasis or different points in the overall production process.

Senator **Proxmire**. What really hits you right away is the dropoff in tank production. The Soviets have a tremendous advantage over us in number of tanks. Is it in general that the equipment that they have tapered off a little bit is in that area where they do have superiority already? They are producing a lot more tanks than we are even now.

General **Bissell**. That's right, sir. And that could be. By the same token, we have noted [security deletion]. I would say that if you drew a trend line, that shows a decline. I would have to say that is an assessment of their feeling of where they stand relative to the United States at this point in that particular weapon system.

Senator **Proxmire**. Thank you.

[Slide.]



SOVIET MILITARY PRODUCTION DECLINES (1978-1982)

EQUIPMENT TYPE	1978	1979	1980	1981	1982
● TANKS	3,000	3,500	3,100	2,000	2,500
● APCs	1,600	1,900	1,900	1,000	500
● ARMORED RECCE VEHICLES	1,100	1,200	1,200	1,000	700
● SELF-PROPELLED ARTILLERY	1,000	800	600	700	700
● MAJOR SURFACE COMBATANTS	11	11	11	9	8
● ATTACK SUBMARINES	11	10	11	9	7
● FIGHTER/FIGHTER-BOMBERS	1,250	1,300	1,300	1,350	1,100
● TRANSPORTS	400	400	350	350	350
● ICBMs	225	225	250	200	175
● SLBMs	250	200	200	175	175
● MILITARY GROUND-BASED RADARS	1,000	1,000	900	900	800

G0258 15

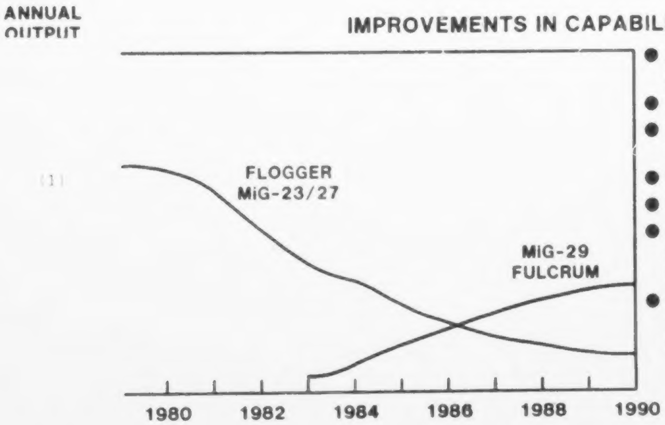
General **Bissell**. Some weapon systems have declined in production, as we had expected. Shown here is an example that illustrates some of the factors contributing to lower levels of production in new systems. One factor is simply the cyclical nature of weapons production. As older weapon systems are phased out of production their follow-on or replacement systems will not reach full production immediately, but will be phased in over a multiyear period.

New Soviet systems are substantially more complex and contain some of the most advanced technology available and therefore require more time to produce. Further, problems in research, development, and testing have slowed the entire weapon cycle.

As the Soviets continue to strive to achieve the latest state of the art in military technology, delays will possibly become more pronounced. More significant, perhaps, in accounting for declines in production is the fact that the new weapon systems are more capable than older ones, and therefore the Soviets are not replacing the latter on a straight one-for-one basis.

[Slide.]

WEAPON SYSTEM PRODUCTION



IMPROVEMENTS IN CAPABILITY:

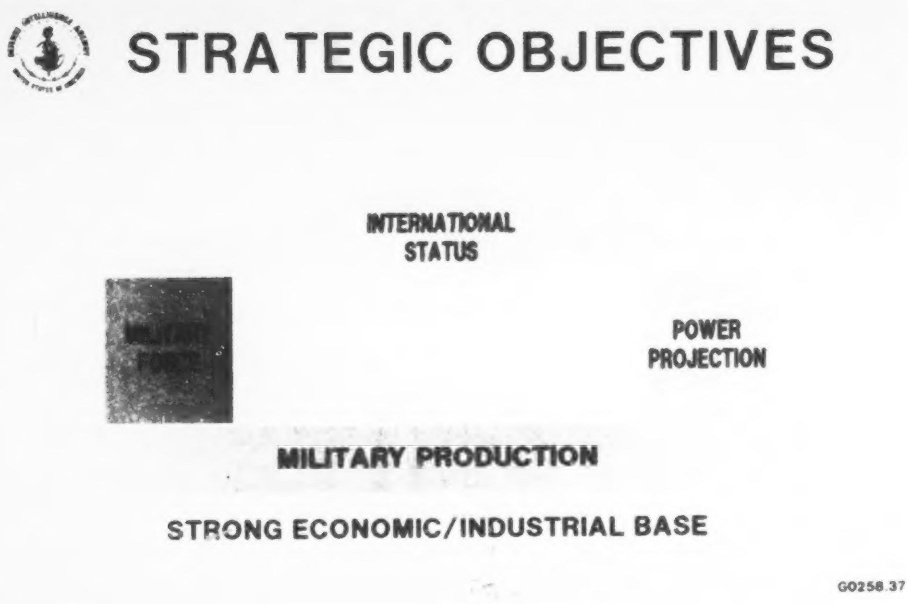
- MULTIMISSION CAPABILITY
- BETTER HANDLING
- WIDER ALTITUDE REGIME
- INCREASED POWER
- INCREASED RANGE
- LOOK-DOWN/SHOOT-DOWN CAPABILITY
- ABILITY TO ACQUIRE, TRACK AND FIRE ON MULTIPLE TARGETS

G0258 23

(1) Security deletion.

General BISSELL. Soviet defense industry provides not only for the Nation's domestic military forces, but also supports the strategic objective of projecting power and influence.

[Slide.]



STRATEGIC OBJECTIVES

INTERNATIONAL
STATUS

MILITARY
FORCE

POWER
PROJECTION

MILITARY PRODUCTION

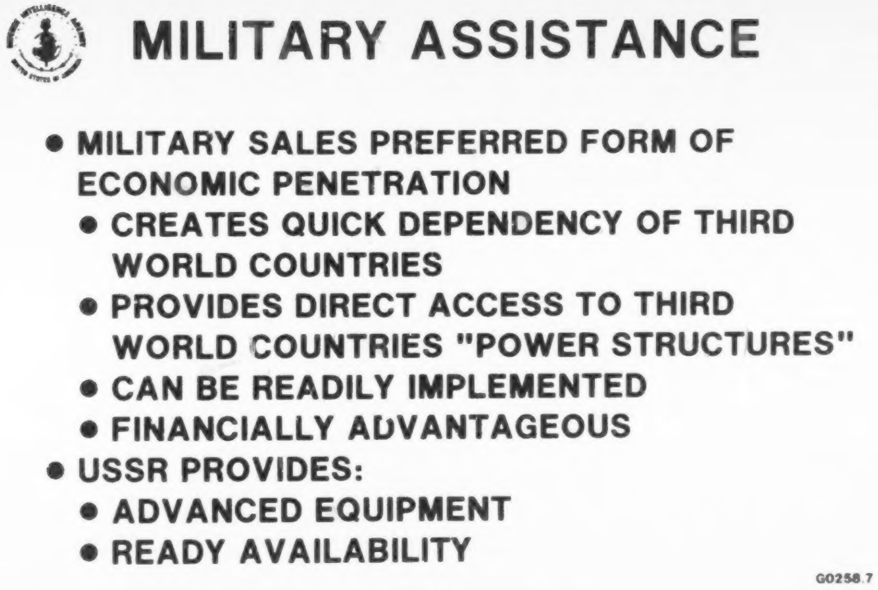
STRONG ECONOMIC/INDUSTRIAL BASE

G0258.37

MILITARY SALES

General BISSELL. This is partly accomplished via military sales, which is the Soviet Union's leading instrument of economic penetration. Arms sales to Third World countries serve to make those countries dependent on the Soviet Union for such things as spare parts, training, and future deliveries. The capability to export large quantities of military equipment derives from apparent Soviet plans to include export requirements into their usually long production runs, which permit them to quickly implement arms sales decisions, and should the need arise, to provide materiel from their own reserves. The Soviets' willingness to make major sales concessions has helped to make them, since 1980, the world's largest arms exporter to the Third World.

[Slide.]



MILITARY ASSISTANCE

- MILITARY SALES PREFERRED FORM OF ECONOMIC PENETRATION
  - CREATES QUICK DEPENDENCY OF THIRD WORLD COUNTRIES
  - PROVIDES DIRECT ACCESS TO THIRD WORLD COUNTRIES "POWER STRUCTURES"
  - CAN BE READILY IMPLEMENTED
  - FINANCIALLY ADVANTAGEOUS
- USSR PROVIDES:
  - ADVANCED EQUIPMENT
  - READY AVAILABILITY

G0258.7

General BISSELL. During the 1978–82 period over $38 billion worth of Soviet military equipment was delivered. The main recipient countries were in the Near East and accounted for over $25 billion or some 65 percent of the total. The rapid increase in the value of arms transfers during this period can be attributed to high level Soviet decisions to sell higher priced, more sophisticated equipment.

Senator PROXMIRE. Do you have any data on the amount, if any, that was sent to Central America?

General BISSELL. Not at my fingertips. We do not have the hard data for you. We can get that for you for the record.

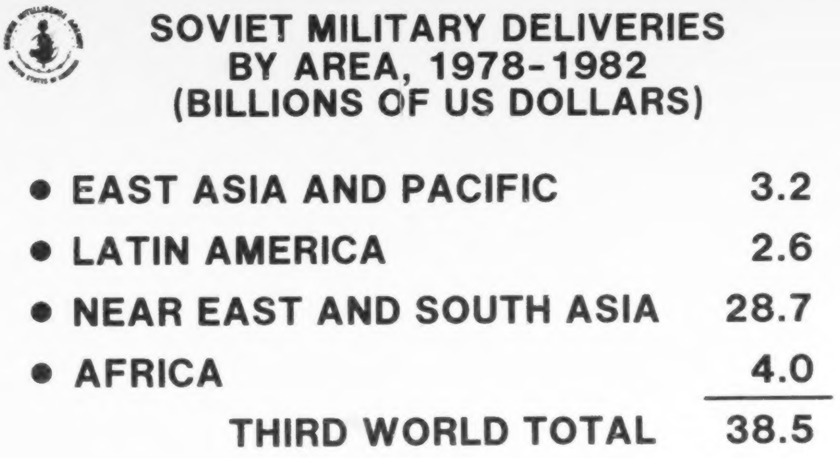
Senator PROXMIRE. Thank you.

[The following information was subsequently supplied for the record:]

SOVIET MILITARY SALES

During the period 1978–82, the USSR provided only one Central American nation with military aid. In 1981, the Soviet Union began supplying Nicaragua with military equipment that, by the end of 1982, totaled [security deletion] million.

[Slide.]



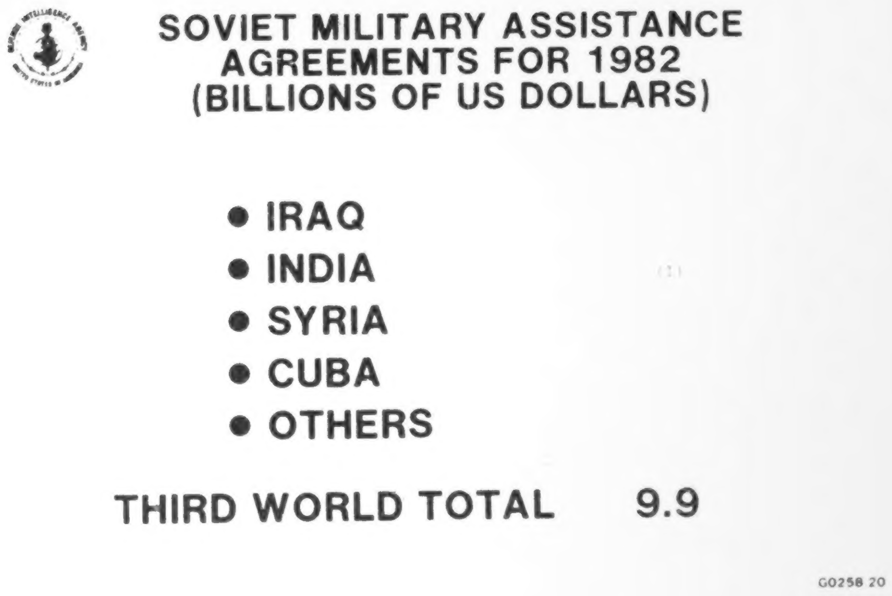
SOVIET MILITARY DELIVERIES BY AREA, 1978-1982 (BILLIONS OF US DOLLARS)

• EAST ASIA AND PACIFIC	3.2
• LATIN AMERICA	2.6
• NEAR EAST AND SOUTH ASIA	28.7
• AFRICA	4.0
THIRD WORLD TOTAL	38.5

G0258.19

General BISSELL. Based on multibillion dollar military assistance agreements in [security deletion] 1982, continuing high levels of deliveries can be expected in the future. Further, the Soviet Union's commitment to supply its clients with modern military equipment and to maintain its position as a reliable supplier has been demonstrated by [security deletion] in 1982.

[Slide.]



SOVIET MILITARY ASSISTANCE AGREEMENTS FOR 1982 (BILLIONS OF US DOLLARS)

- IRAQ
- INDIA (1)
- SYRIA
- CUBA
- OTHERS

THIRD WORLD TOTAL 9.9

G0258 20

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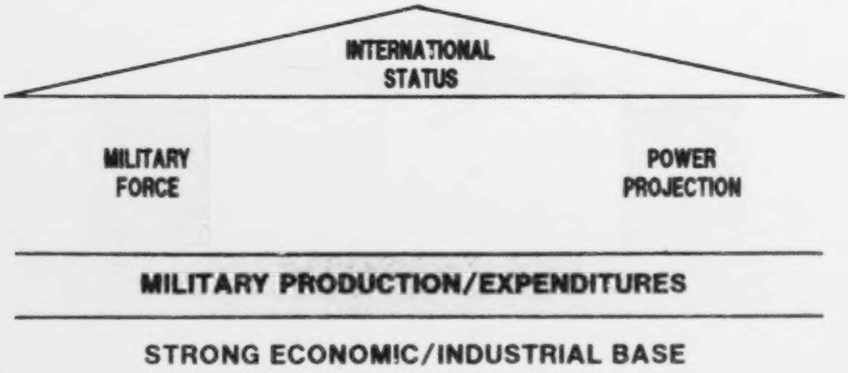
[1] Security deletion.

General BISSELL. The cost of supplying the material required by the Soviet military and developing its forces is enormous. To measure the magnitude and growth of Soviet defense activities, estimates of the dollar costs and ruble expenditures are developed.

[Slide.]

STRATEGIC OBJECTIVES



INTERNATIONAL STATUS

MILITARY FORCE

POWER PROJECTION

MILITARY PRODUCTION/EXPENDITURES

STRONG ECONOMIC/INDUSTRIAL BASE

G0258.38

DEFENSE COSTS IN DOLLARS

General Bissell. It is estimated that since 1970 the total dollar cost of Soviet defense programs has risen in real terms, marking continuous growth in the overall level of Soviet military activity. The observed phenomenon of slowing growth, from 4 percent annually in the early 1970's down to about 2 percent annually most recently, is partially accounted for by the fact that as each annual increment is added to a progressively larger base the growth rate slows. In 1981 alone the estimated dollar cost of the Soviet defense program was in excess of $220 billion. Much of this expansion stems from the acquisition of a variety of much more costly, sophisticated weapon systems such as peripheral attack missiles, interceptor aircraft, tanks, tracked vehicles, artillery, and major surface combatants.

Senator Proxmire. General, could you put that chart in the big statement? It is not in this statement. It is a very helpful chart.

General Bissell. That can be put into the unclassified part.

Senator Proxmire. Fine. As I understand it, what that chart tells us is that the period 1970 to 1974 the average annual growth rate was 4 percent?

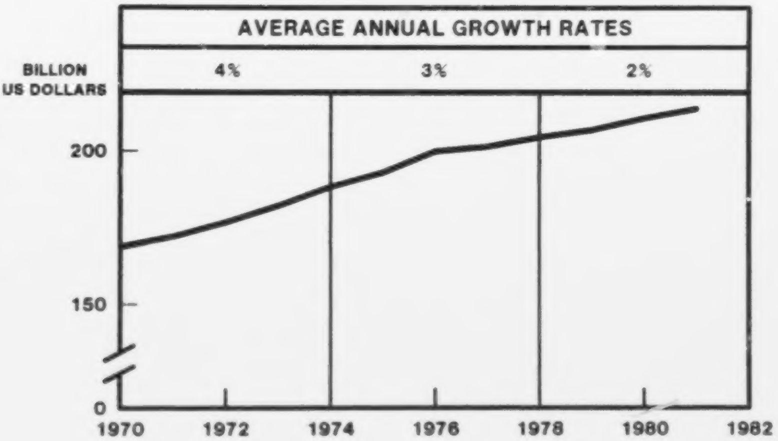
General Bissell. That's correct.

Senator Proxmire. In the following 5 years it was 3 percent, and from 1978, the last 4 or 5 years, it has been 2 percent.

General Bissell. I think for the whole period it averages about 3 percent.

[Slide.]

UPWARD GROWTH CONTINUES IN SOVIET DEFENSE PROGRAMS, 1970-1981
(ESTIMATED 1981 DOLLAR COSTS)



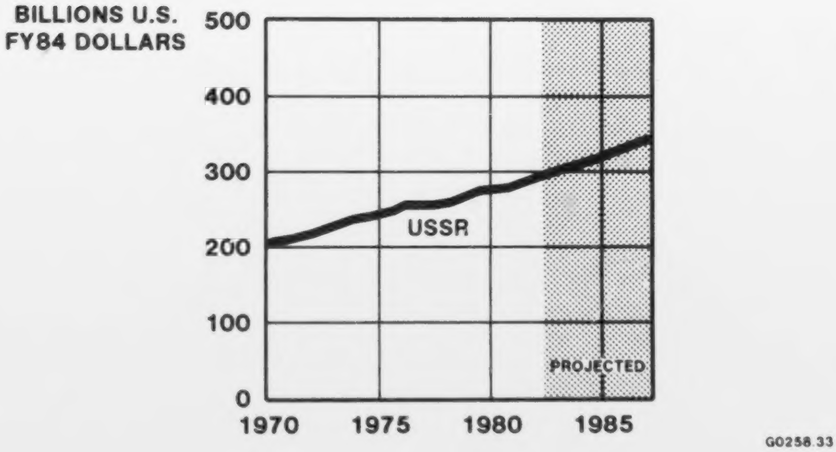
G0258.25

PROJECTED COSTS

General BISSELL. The projected acquisition trends for new Soviet systems under development drive estimated dollar cost of the Soviet defense program up at a rate close to the historical norm of at least 3 percent per year.

[Slide.]

USSR: ESTIMATED DOLLAR COST OF TOTAL DEFENSE PROGRAMS, 1970-85



General **Bissell**. With the incorporation of new and more expensive technologies into the deployed Soviet forces, we expect the dollar cost for procurement of the strategic forces to increase by about [security deletion] percent per year, as shown here, while the procurement cost for the general purpose forces is expected to increase by about [security deletion] percent per year. The expected increase in strategic force procurement will be led by bombers and missiles, and the expected increase in general purpose forces by aircraft for the tactical air forces.

Senator **Proxmire**. Why is the range so big? These are projections I am talking about now. You have got a big range in the projection, and the outside top increase would be sharper than any you have had since 1972. Is there a particular reason for that possibility?

Mr. **Michaud**. The lower part of the range is based on a continuation of historical trends. The higher part of the range is based on the highest projection that we have made for those forces. The rates of growth that the general just quoted is a midpoint in that range at [security deletion] percent.

Senator **Proxmire**. Why would it not be possible for it to go down? The floor is the continuation of the present 2 percent. You assume it cannot go below that, is that right?

Mr. **Michaud**. Well, there is a possibility, but the intelligence community is in agreement that there is going to be an upward trend in the growth in these forces in the next few years.

Senator **Proxmire**. You are projecting 3 percent. Why is that?

Mr. **Michaud**. The 3 percent is the continuation of past trends.

Senator **Proxmire**. It has been 2 percent lately, has it not? So you are projecting a higher rate.

Mr. **Michaud**. For the total, right.

Senator **Proxmire**. Why is that?

Mr. MICHAUD. There are a number of new systems that are coming in that are very expensive, including the Blackjack aircraft, the SSNX-20, and there will be some MIRV'ing of weapon systems. We expect a lot of activity in strategic forces.

Senator PROXMIRE. But you are projecting 3 percent for all defense, not just strategic forces.

Mr. MICHAUD. That is right.

Senator PROXMIRE. But they are not all increasing in cost, are they?

Mr. MICHAUD. No; there will be some forces that may have a lower rate of growth than the strategic forces. As shown here, strategic forces would be growing faster than most of them. The support forces may have a lower rate of growth than the 3 percent.

Senator PROXMIRE. But why are you projecting 3 percent when it has been 2 percent for the last 5 years?

Mr. MICHAUD. Why are we projecting 3 percent?

Senator PROXMIRE. Yes. All of a sudden you project 3 percent as the floor instead of 2 percent when it has been 2 percent. If you continue the projection of the last 5 years, it would be 2 percent.

Mr. MICHAUD. Well, this is a period where the procurement levels have leveled off, as we indicated in the earlier graphics. As a result of the relatively low procurement rates of growth in the last few years this has impacted on total defense expenditures and reduced the growth in the totals to 2 percent from 3 percent. With an upswing in procurement over the next few years we fully expect the total defense expenditure to be back at 3 percent.

Senator PROXMIRE. Is it not true that you were projecting 3 percent in the past and you were wrong, you were too high, and it turned out to be 2 percent?

Mr. MICHAUD. Yes, sir; there were some weapon systems that came in a little later than we expected them to come in, and we fully expected the new systems to be coming in in 1981 and 1982, and they will now be coming in 1983, we suspect. We have already seen one new system come in in the last month. Introductions have been extended somewhat, and that has affected the growth rate in procurement.

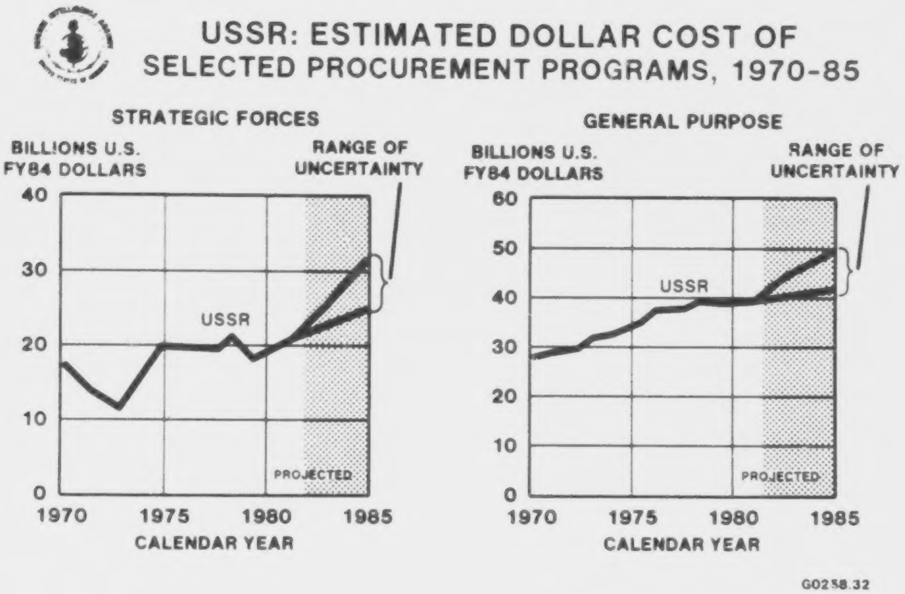
Senator PROXMIRE. You do not think this is a late pattern that they will continue to come in?

Mr. MICHAUD. No; we see them definitely under development and under test. They just have not hit the procurement stage as yet.

General BISSELL. I guess there are two factors. One is, looking at the period since 1970, it has gone from 4 percent, to 3 percent, to 2 percent. There is a possibility that it could increase or the rate for the next 5 years could continue at 2 percent. But in looking at the longer period of what has been the historic average of that, I think we feel a little more comfortable that that would be the pattern at this time that we would forecast based on the new systems that we see developing. It may develop that 2 percent will be a more significant trend as it projects for a longer period. But if you look at the longer period, right now we have actually averaged 3 percent.

Senator PROXMIRE. All right. Go ahead, General.

[Slide.]



USSR: ESTIMATED DOLLAR COST OF SELECTED PROCUREMENT PROGRAMS, 1970-85

DEFENSE SPENDING IN RUBLES

General BISSELL. We estimate defense expenditures in current ruble terms in order to capture the Soviet leadership's perspective and to measure the share of the total economy committed to the defense sector. These estimates are based on [security deletion] about defense spending and published Soviet data.

We estimate that in current prices Soviet defense expenditures rose from 50 billion rubles in 1970 to about 100 billion rubles in 1981, or at an average annual rate of about 7 percent.

The increase in defense expenditures is in part attributable to rapidly rising costs of Soviet weapons systems.

Senator PROXMIRE. Let me make sure I understand. When you say current rubles, you are talking about unadjusted for inflation, is that right?

General BISSELL. Yes, sir. We do have an inflation factor. We are actually talking about current rubles as opposed to constant, which would be without an inflation factor.

Senator PROXMIRE. These are not constant price increases?

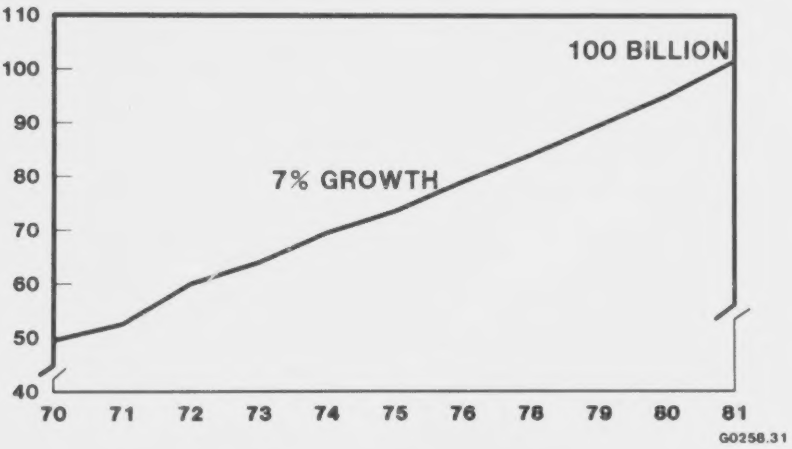
General BISSELL. No, sir.

Senator PROXMIRE. Give that to us later.

General BISSELL. All right, sir.

The general trend toward larger, more sophisticated equipment is translated into much more expensive weaponry.

[Slide.]



SOVIET DEFENSE EXPENDITURES
(BILLIONS OF CURRENT RUBLES)

General BISSELL. Defense growth exceeded the 5-percent average annual increase in current price gross national product.

DOLLAR AND RUBLE ESTIMATES COMPARED

Senator PROXMIRE. I am sorry, General. I do not mean to delay you too much. I would like to go back to that other chart. It does seem to conflict with what we have had earlier in the chart we had before. That shows a steady increase from 1971 to 1981. We just had a chart showing that procurement actually declined in its rate of growth 4-3-2. This, however, shows a steady growth. Is the difference because the previous chart was based on real expenditure and this is current, not allowing for inflation? Or is there some other explanation?

General BISSELL. The other chart which shows the percent of growth and the total cost is done in U.S. dollars and is a dollar estimate. The ruble estimate is an effort to cast what the Soviet leadership perspective might be in terms of putting the cost into a level-of-effort situation in rubles, and it has an inflationary factor. At least the DIA includes inflation as part of that overall process.

Senator PROXMIRE. The confusing thing is that the earlier chart showed a slowdown; this shows no slowdown at all; it shows a steady rate of increase, 7 percent, right through for 10 years; whereas the other showed a regular slowdown of 4, and 3, and 2, this does not show it.

It seems to be a contradiction.

General BISSELL. Well, we are working in two different methodologies and in two different evaluation systems.

Senator PROXMIRE. Which one would you feel is—you are saying this is from the Soviet perspective, but which one should we assume is the accurate one?

General **Bissell**. I think that for the purposes that we use it most frequently the dollar figure is the most reliable one for our purposes in aggregating the cost of production.

Senator **Proxmire**. I do not mean for you to take the time to do this now, but for the record, I would appreciate it if you could insert in the available information an explanation of the difference between the ruble measure and the dollar measure.

General **Bissell**. All right.

[The following information was subsequently supplied for the record:]

Ruble/Dollar Costing

The dollar measure of Soviet defense programs used by the Intelligence Community is an estimate of what it would cost, using prevailing U.S. prices and wages, to produce and man a military force of the same size and with the same weapons as that of the U.S.S.R., and to operate that force as the Soviets do.

Because this measure is in terms of U.S. cost, [security deletion].

Estimates of ruble defense spending are developed in order to replicate the Soviet perspective, and to measure defense expenditures in the context of the overall Soviet economy. The ruble expenditure estimate is a measure of [security deletion].

Where the U.S. dollar cost estimate of [security deletion].

DEFENSE AND GNP GROWTH RATES

General **Bissell**. Defense growth exceeded the 5-percent average annual increase in current price gross national product, resulting in an increase of the defense share of gross national product from 12 to 14 percent in 1970 to 14 to 16 percent in 1981, using current prices includes some inflation. However, there is substantial uncertainty about its magnitude. Any inflationary effects will be reflected in both GNP and defense expenditure measures. If defense spending continues to outpace economic growth, the defense share will continue to increase, further aggravating the Soviet Union's economic problems and making it more difficult for the Soviets to achieve their long-term goals for securing economic growth at rates fulfilling both domestic and foreign requirements.

Senator **Proxmire**. Is it true that it has not been outpacing economic growth since 1976? The economic growth since 1976 has been 2 percent and that has been the rate of growth also of the Soviet defense expenditures?

Mr. **Michaud**. Mr. Chairman, the growth in the GNP in constant terms and in the dollar expenditures are about the same. What we are presenting here is the growth in the GNP and in expenditures in current ruble terms. So they are two different sets of comparisons that you are making. We would not want to compare the dollar growth in defense expenditure with the GNP growth in rubles. What we want to compare are likes, and in this case we are comparing in current terms the GNP and the defense expenditures.

Senator **Proxmire**. Based on data, General, we have compiled a GNP growth from 1977 to 1981 with a [security deletion] percent change; total defense activities, [security deletion]; defense procurement, [security deletion]. That is what we seem to have derived from the information that was made available to us, the intelligence data. That would indicate the defense activities, instead of going faster than GNP, have gone less fast since 1977, and that defense procurement, as compared to the overall defense activities, has grown even less.

Mr. MICHAUD. All of our statistics are presented in current terms. I think what you are referring to are some growth rates in constant prices.

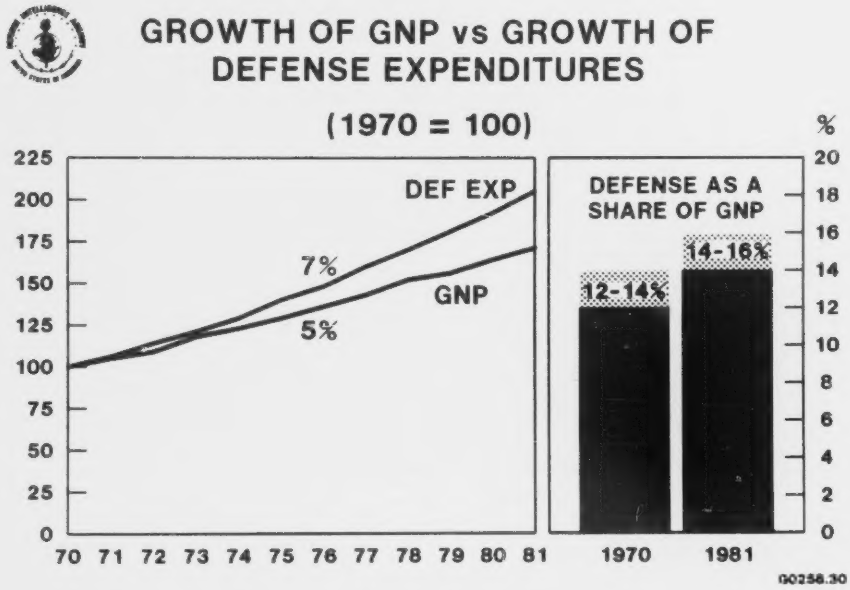
Senator PROXMIRE. That is correct. This is intelligence data. In constant prices, then the defense activities have been growing less than the GNP and defense procurement has been growing less than either.

Mr. MICHAUD. The GNP growth rate we have not calculated in constant terms. That's the CIA calculation. I believe they are saying that the growth rate in GNP is about [security deletion] percent, and I do not know what their calculations in ruble terms are because they have not published it yet. So I am really not in a position to make——

Senator PROXMIRE. Well, I do not want to delay you too long. I know Mr. Lungren will have questions, too, a little later. What we have, based on overall intelligence data, is GNP growth, 1977 to 1981, [security deletion] percent; total defense activities, [security deletion] percent; defense procurement, [security deletion].

General BISSELL. I would think in constant dollars those figures would be very close in that respect.

[Slide.]

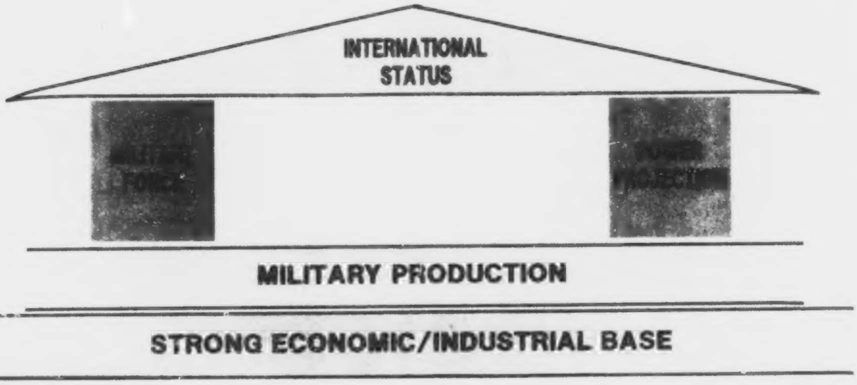

GROWTH OF GNP vs GROWTH OF DEFENSE EXPENDITURES

(1970 = 100)

General BISSELL. While the defense sector has exhibited the most rapid growth, the rest of the economy has not stood still.

[Slide.]

STRATEGIC OBJECTIVES



INTERNATIONAL
STATUS

MILITARY PRODUCTION

STRONG ECONOMIC/INDUSTRIAL BASE

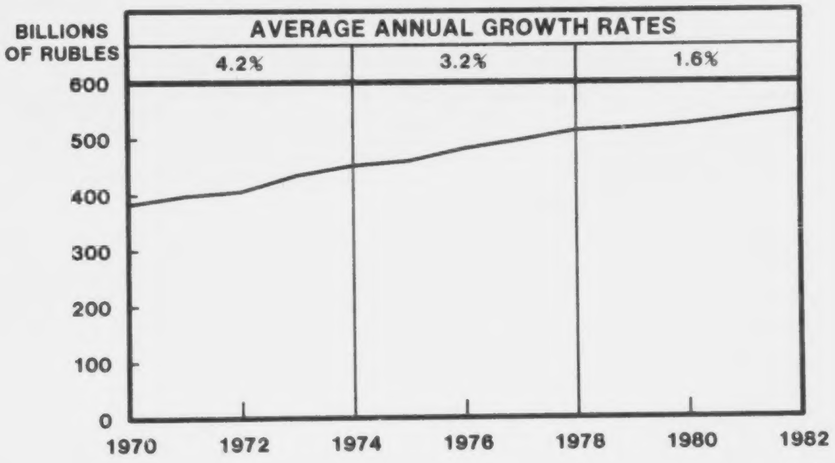
G0258.35

ECONOMIC PERFORMANCE

General BISSELL. Soviet gross national product continues to increase, albeit more slowly than in the past. Again, the slowing rate of growth is in part due to the same arithmetic phenomenon of adding increments to a progressively larger base.

[Slide.]

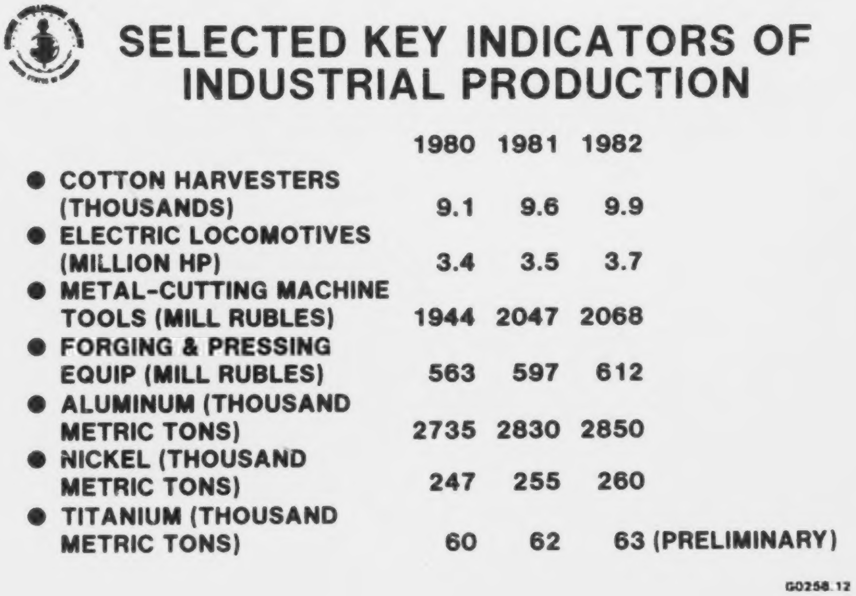
ESTIMATED SOVIET GNP
(BILLIONS OF 1970 RUBLES)



G0258.24

General BISSELL. Soviet economic performance for some key industrial products is shown here. Results have been mixed. There have been positive developments in some sectors, such as agricultural machinery, growing at 3 to 5 percent annually, and some other machinery equipment, like forging and pressing equipment, growing more than 4 percent per year. While steel production continues to be cited for its poor performance, with output levels actually falling slightly, production is strong in many key metals and specialty steels, such as aluminum and titanium, which are important inputs to military production.

[Slide.]



SELECTED KEY INDICATORS OF INDUSTRIAL PRODUCTION

	1980	1981	1982
● COTTON HARVESTERS (THOUSANDS)	9.1	9.6	9.9
● ELECTRIC LOCOMOTIVES (MILLION HP)	3.4	3.5	3.7
● METAL-CUTTING MACHINE TOOLS (MILL RUBLES)	1944	2047	2068
● FORGING & PRESSING EQUIP (MILL RUBLES)	563	597	612
● ALUMINUM (THOUSAND METRIC TONS)	2735	2830	2850
● NICKEL (THOUSAND METRIC TONS)	247	255	260
● TITANIUM (THOUSAND METRIC TONS)	60	62	63 (PRELIMINARY)

G0258.12

CONSTRAINTS ON ECONOMY

General BISSELL. This is not to suggest that the economy is without its problems, some of which are indeed serious. As resources have become more scare and costly, the leadership has correctly focused its attention on the need for more effective utilization of these resources—labor, capital, raw materials, and energy.

[Slide.]

ECONOMIC PROBLEMS

- MORE COSTLY RESOURCES
  - PRODUCTIVITY
  - AGRICULTURE
  - TRANSPORTATION

G0258.8

General BISSELL. In addition, the productivity of capital is falling, as shown by output capital ratios for Soviet industry, a measure of how much output is obtained per unit of investment capital. The reasons for the decline are many and varied, ranging from large amounts of unfinished capital construction, to the need to replace extensive amounts of old equipment.

[Slide.]

SOVIET CAPITAL: PROBLEMS

OUTPUT - CAPITAL RATIOS IN SOVIET INDUSTRY
(1970 = 100)

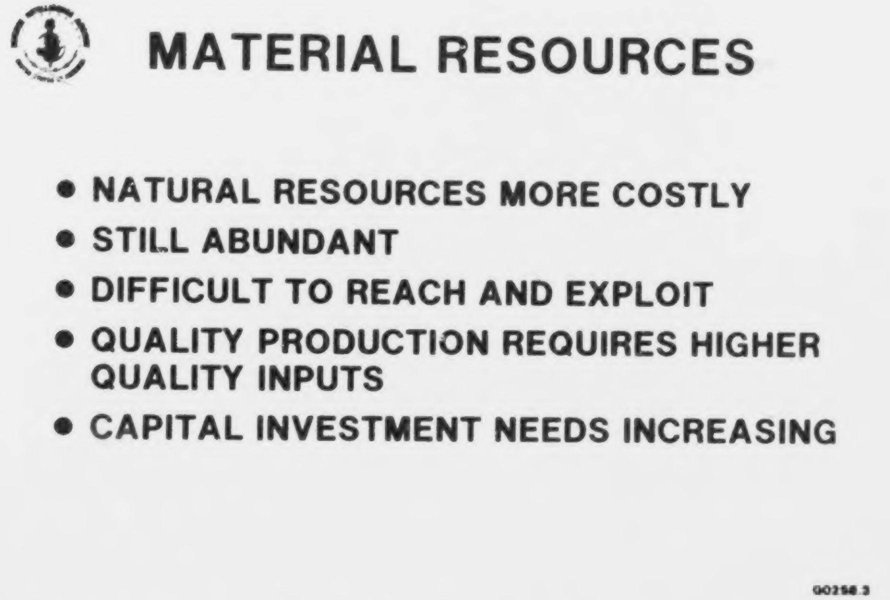
	1970	1975	1977	1979	1980	1981
• ALL INDUSTRY	100	94.7	90.9	85.2	82.4	79.3

- 1981 TOTAL CAPITAL INVESTMENT=138 BILLION RUBLES
  1981 UNFINISHED CONSTRUCTION=108 BILLION RUBLES
- GREATER NEED FOR:
  - MORE INVESTMENT
  - BETTER UTILIZATION OF EQUIPMENT

G0258.11

General **Bissell**. Another fact affecting economic growth is the rising cost of material resources as they become more difficult to reach, extract, process, and transport. In addition, as the Soviets strive to improve production, the demand for higher quality inputs and the need for greater technological sophistication increases. More investment is required in these areas in order to meet industrial needs, creating further demands on capital.

[Slide.]



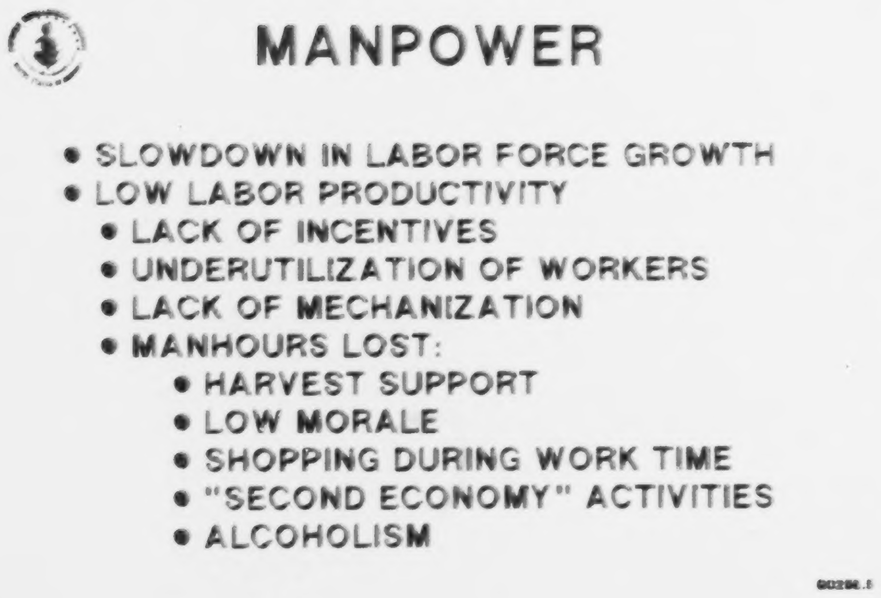
MATERIAL RESOURCES

- NATURAL RESOURCES MORE COSTLY
- STILL ABUNDANT
- DIFFICULT TO REACH AND EXPLOIT
- QUALITY PRODUCTION REQUIRES HIGHER QUALITY INPUTS
- CAPITAL INVESTMENT NEEDS INCREASING

G0258.3

General **Bissell**. There has been a marked slowdown in the growth of the labor force, which directly affects the economy's capacity to expand and which is further exacerbated by low levels of labor productivity. Food shortages and inadequate supplies of consumer goods have contributed to low labor productivity by reducing incentives for workers. In addition, high levels of underemployment, manual work in all sectors of the economy, and man-hours lost to nonproductive activities further reduce productivity.

[Slide.]



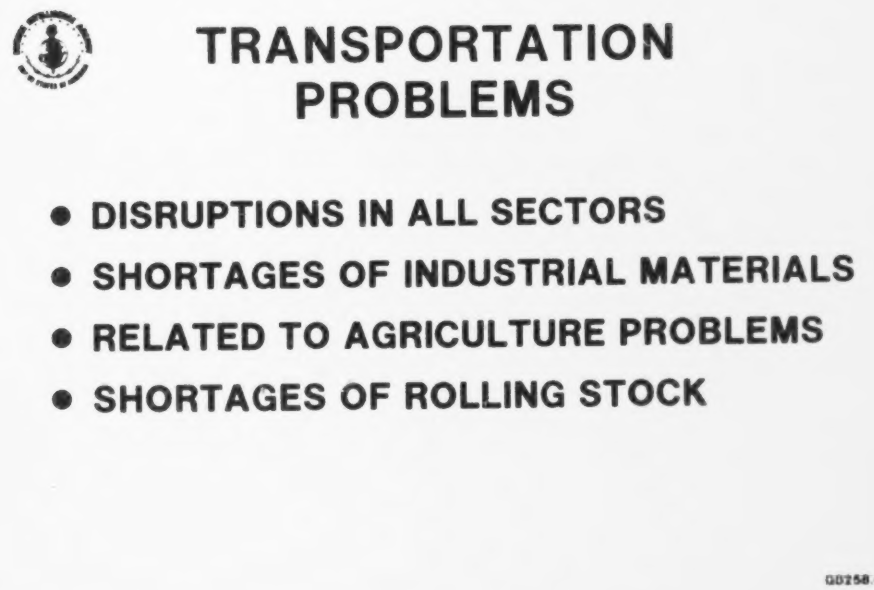
MANPOWER

- SLOWDOWN IN LABOR FORCE GROWTH
- LOW LABOR PRODUCTIVITY
  - LACK OF INCENTIVES
  - UNDERUTILIZATION OF WORKERS
  - LACK OF MECHANIZATION
  - MANHOURS LOST:
    - HARVEST SUPPORT
    - LOW MORALE
    - SHOPPING DURING WORK TIME
    - "SECOND ECONOMY" ACTIVITIES
    - ALCOHOLISM

[illegible]

General BISSELL. Also constraining industrial growth is the overburdened transportation network, the congestion of which is in large part a consequence of poor agricultural performance. The Soviet leadership has made decisions to insure the prompt movement of massive amounts of imported grain and foods as well as the domestic distribution of food supplies. As a result of the increased demand for and shortage of available rolling stock, normal rail service throughout the economy has been disrupted. Analysis [security deletion] shows that disruptions to essential rail services in the industrial sector have randomly affected a wide variety of industrial enterprises. These disruptions have often meant repeated shortages of metals, minerals, fuels, wood products, and numerous component parts.

[Slide.]



TRANSPORTATION PROBLEMS

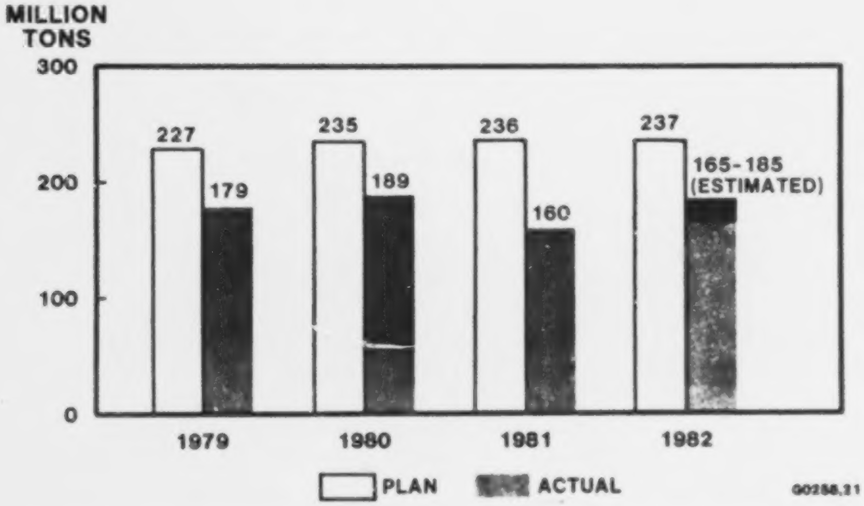
- DISRUPTIONS IN ALL SECTORS
- SHORTAGES OF INDUSTRIAL MATERIALS
- RELATED TO AGRICULTURE PROBLEMS
- SHORTAGES OF ROLLING STOCK

G0258.4

General BISSELL. These leadership decisions have been necessary because of unusually poor results in grains and most other foods over the past 4 years. As shown here, poor grain harvests continued in 1982. It should be pointed out that four consecutive poor harvests are unprecedented in Soviet history. A turnaround in agricultural production would alleviate many of the strains on the transportation sector and improve worker incentives through more abundant food supplies. All told, some of the pressures on the economy could be relieved, which could translate rather quickly into higher growth rates.

[Slide.]

SOVIET GRAIN CROP PRODUCTION

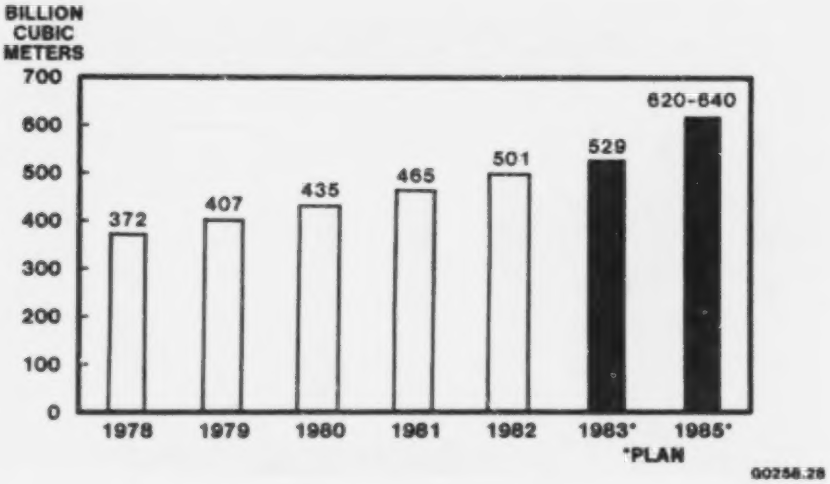


ENERGY

General Bissell. One of the brightest spots in the economy is the performance of the energy sector. Natural gas production continues to grow at a rate of 7 to 8 percent annually, and the U.S.S.R. should, within a few years, become the world's leading producer of natural gas. Proved Soviet natural gas reserves are the largest in the world, equating to over 200 billion barrels of oil.

[Slide.]

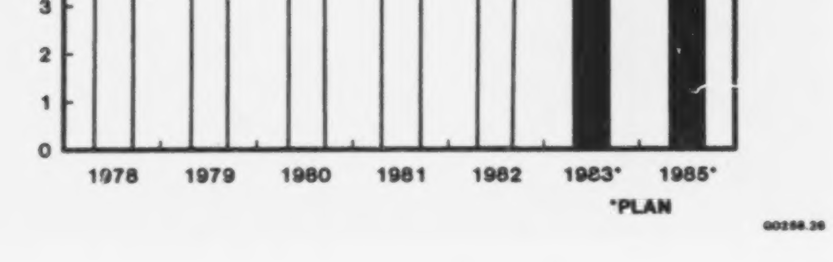
SOVIET NATURAL GAS PRODUCTION



General BISSELL. Soviet petroleum production continues to grow, though at a moderate rate of less than 1 percent a year. We expect production to reach or only narrowly miss the 1983 planned goal, based on production for the first quarter of 1983, which was reported to be 2 percent higher than for the same period in 1982. We also expect the U.S.S.R. to meet its 1985 target.

[Slide.]

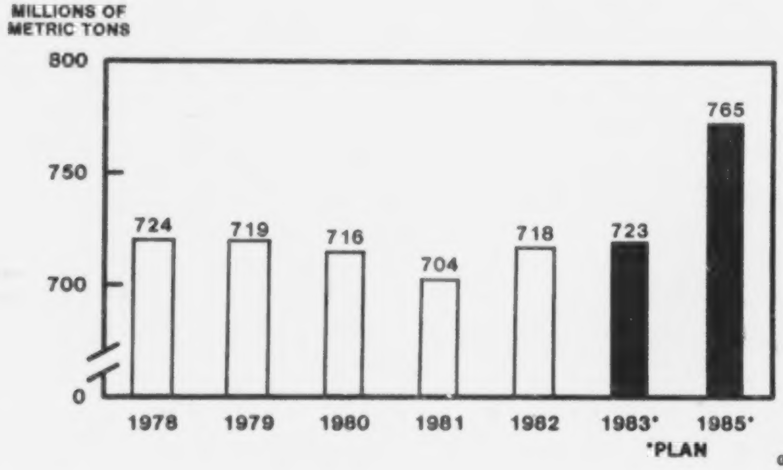
SOVIET OIL PRODUCTION



General Bissell. Soviet coal production showed a sharp turnaround in 1982, following several years of declining production. We expect the modest 1983 goal to be attained, but the 1985 target may not be realistic. Constraints on Soviet coal production are due not to insufficient coal reserves, but to shortcomings in the industry's infrastructure and management.

[Slide.]

SOVIET COAL PRODUCTION

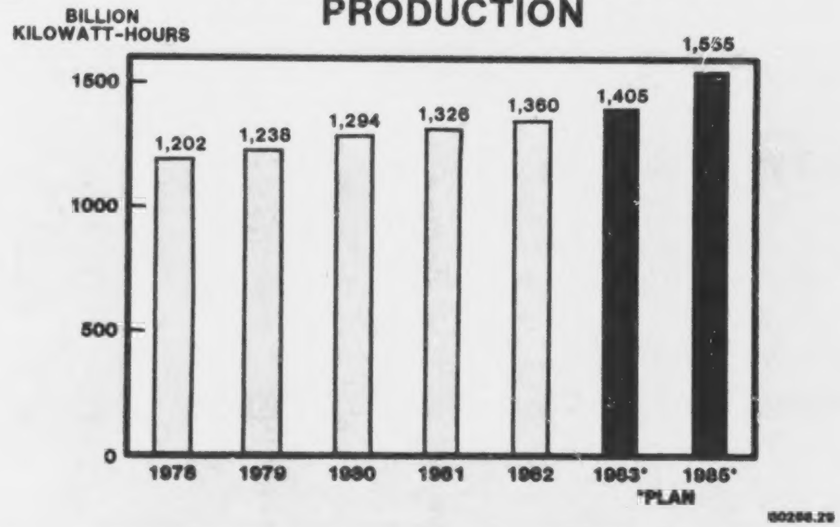


G0258,27

General Bissell. Production of electric power has been growing at a rate of 3 percent over the last several years. Production goals for 1983 will probably be met, although some problems in installing nuclear capacity may have some effect.

[Slide.]

SOVIET ELECTRIC POWER PRODUCTION



General Bissell. The long-term outlook for energy production is dependent not only on the Soviet Union's productive capacity, but on its energy reserves. The magnitude of these reserves, shown here, indicates that the Soviets have the potential for continuing long-term growth.

[Slide.]

ENERGY RESERVES

• COAL	5.7 TRILLION METRIC TONS
• NATURAL GAS	36 TRILLION CUBIC METERS
• OIL	80-85 BILLION BARRELS

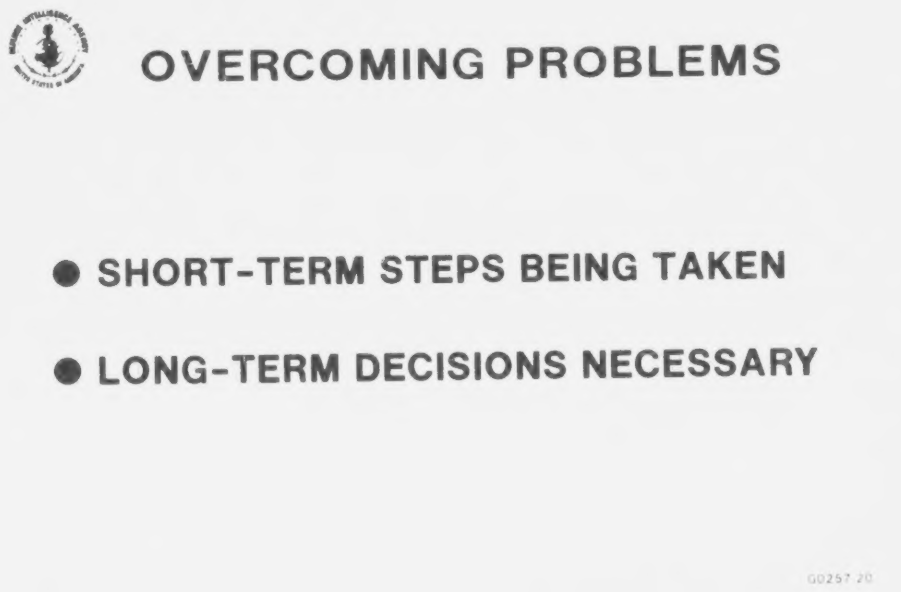
G0256.8

FOREIGN TRADE

General Bissell. As economic growth has slowed and industrial productivity has fallen off, the need for hard currency earnings has increased, not only for the purchase of food and agricultural commodities, but also for technological advanced machinery and equipment to improve industrial performance.

Soviet hard currency earnings from oil sales increased because the volume of oil exports rose even as world oil prices were sharply declining. This, coupled with reduced food purchases, slightly improved the Soviet's hard currency position in 1982.

[Slide.]



OVERCOMING PROBLEMS

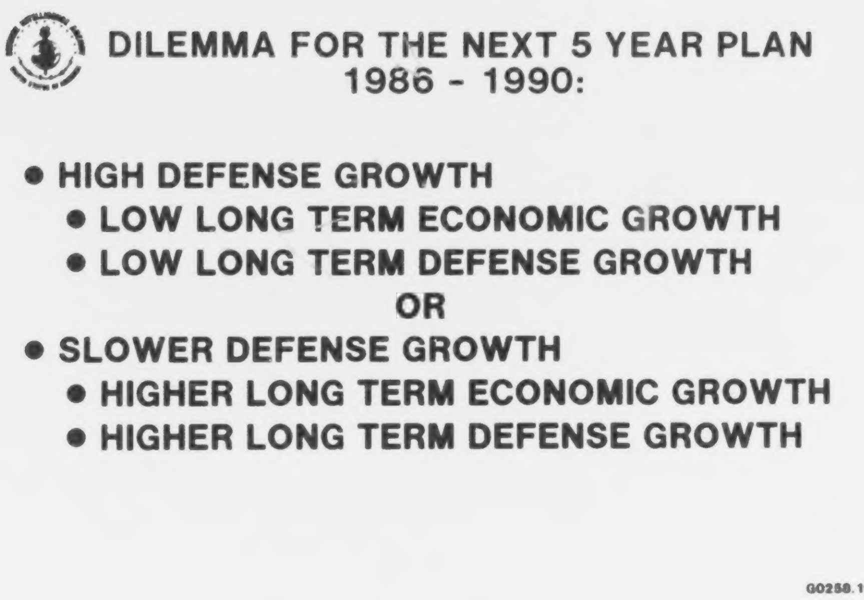
- SHORT-TERM STEPS BEING TAKEN
- LONG-TERM DECISIONS NECESSARY

G0257 20

General Bissell. Hard currency expenditures by the Soviets are concentrated on imports of machinery and agricultural commodities. Imports of technology and machinery from the West, considered necessary for the development of heavy industry and agriculture, have received renewed priority. Expenditures of almost $7 billion last year on Western machinery and equipment indicate that, as has been seen in the chemical machinery industry, the Soviets find it more expeditious to purchase from the West rather than develop their own capabilities to manufacture essential capital goods.

Although overall agricultural imports are down slightly, hard currency outflows for such commodities remained quite high. The Soviets have not changed their policy of importing huge volumes both of grain and other food commodities to make up for domestic shortfalls. They have been able to accomplish this balance of hard currency earnings of about $40 billion last year, a figure expected to increase to about $45 to $55 billion by the late 1980's.

[Slide.]



DILEMMA FOR THE NEXT 5 YEAR PLAN
1986 - 1990:

- HIGH DEFENSE GROWTH
  - LOW LONG TERM ECONOMIC GROWTH
  - LOW LONG TERM DEFENSE GROWTH

OR

- SLOWER DEFENSE GROWTH
  - HIGHER LONG TERM ECONOMIC GROWTH
  - HIGHER LONG TERM DEFENSE GROWTH

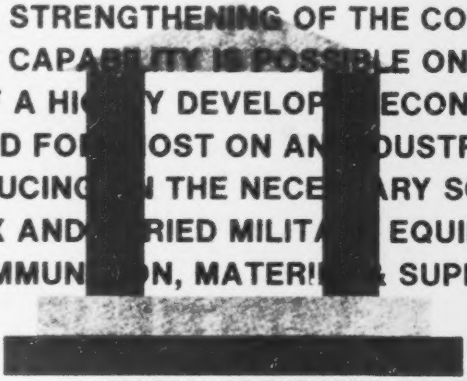
G0258.10

ANDROPOV

General **BISSELL**. Short-term measures that have been taken since General Secretary Andropov came to power, such as the labor discipline campaign, being taken to address the problems in areas such as agriculture, transportation, and productivity, may provide some relief but will not remain effective over the long run. Solving these problems beyond 1985 will call for additional resources some of which will also be required by the military for continuing expansion. Since the resource base will be growing more slowly not all sectors of the economy will be able to expand at the same time at high rates. This not only makes the decisions about future growth more difficult, but also imperative at this time.

[Slide.]

USSR DEPUTY MINISTER OF DEFENSE FOR ARMAMENTS:



"THE STRENGTHENING OF THE COUNTRY'S DEFENSE CAPABILITY IS POSSIBLE ONLY ON THE BASIS OF A HIGHLY DEVELOPED ECONOMY, AND FIRST AND FOREMOST ON AN INDUSTRY CAPABLE OF PRODUCING ON THE NECESSARY SCALE COMPLEX AND VARIED MILITARY EQUIPMENT, ARMS, AMMUNITION, MATERIEL & SUPPLIES."

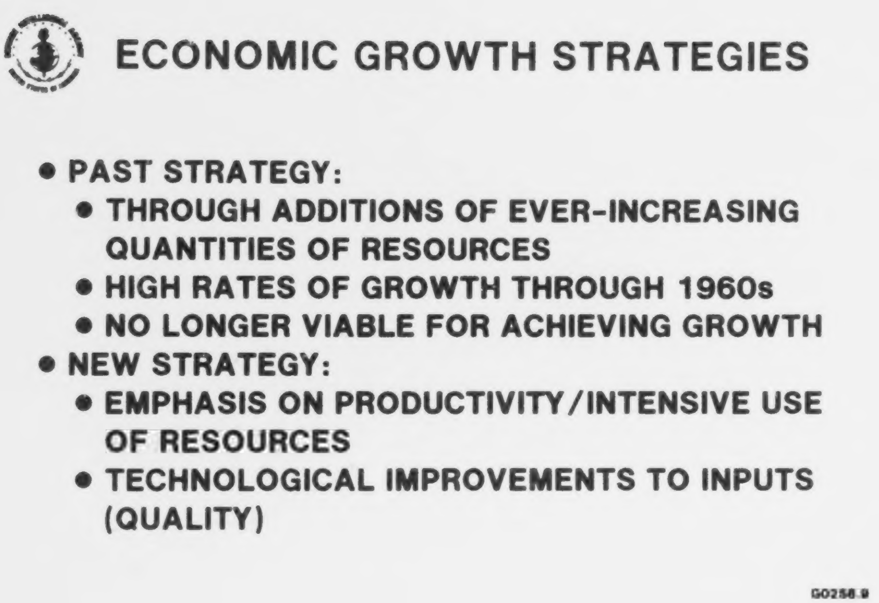
GENERAL OF THE ARMY, V.M. SHABANOV
FEBRUARY, 1983

G0258.12

ECONOMIC GROWTH-DEFENSE DILEMMA

General BISSELL. The defense effort remains the most important Soviet objective and is expected to retain its top priorities and high growth rates in the short term. With slowing economic growth, however, the Soviet leadership, including the military, is faced with a dilemma for the next 5-year plan period. It involves a trade off of either continuing with high rates of defense growth or slowing the rate of defense growth to provide for defense growth in the longer term. Continued high defense growth during the next 5-year plan could mean lower economic growth and lower defense growth into the 1990's.

[Slide.]



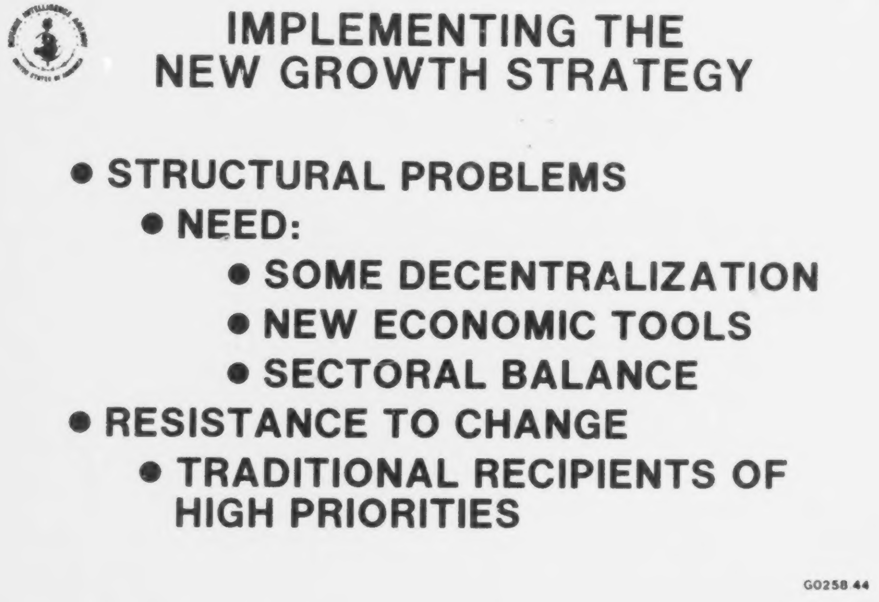
ECONOMIC GROWTH STRATEGIES

- PAST STRATEGY:
  - THROUGH ADDITIONS OF EVER-INCREASING QUANTITIES OF RESOURCES
  - HIGH RATES OF GROWTH THROUGH 1960s
  - NO LONGER VIABLE FOR ACHIEVING GROWTH
- NEW STRATEGY:
  - EMPHASIS ON PRODUCTIVITY/INTENSIVE USE OF RESOURCES
  - TECHNOLOGICAL IMPROVEMENTS TO INPUTS (QUALITY)

G0258.9

General Bissell. As indicated by this quotation, Soviet military leaders are aware of the need for a strong economy with continued growth, especially in the industrial base, which provides the military with its resource requirements and production needs, and of the dilemma which now faces them.

[Slide.]



IMPLEMENTING THE NEW GROWTH STRATEGY

- STRUCTURAL PROBLEMS
  - NEED:
    - SOME DECENTRALIZATION
    - NEW ECONOMIC TOOLS
    - SECTORAL BALANCE
- RESISTANCE TO CHANGE
  - TRADITIONAL RECIPIENTS OF HIGH PRIORITIES

G0258.44

General Bissell. The choice of an economic strategy that will restore higher levels of growth, while not a new issue, is obviously a crucial one for the Soviet leadership. Past high rates of growth, such as those in the 1960's, were achieved by using ever-increasing quantities of relatively cheap and plentiful resources in the production process. As we have already shown, such resources are now more costly and difficult to obtain, which are contributing factors to the slowing growth of the economy since the mid-1970's.

Realizing that past strategy is a detriment to higher rates of growth, the Soviets have developed an alternative growth strategy based on higher rates of productivity and on greater technological improvements.

[Slide.]

LEADERSHIP OPTIONS FOR LONG TERM GROWTH

- CONTINUE ON PRESENT COURSE
- ADOPT MARGINAL CHANGES
- CONSIDER FUNDAMENTAL CHANGES TO ECONOMIC STRUCTURE
    - MILITARY MAY GENERALLY ACCOMMODATE
    - MILITARY EXPANSION WILL CONTINUE

G0258 45

General BISSELL. Although the Soviets have been talking about this new strategy since the 1970's, little has been achieved because of structural economic problems and resistance to change. A mature industrialized economy needs a more decentralized decisionmaking structure. This would permit the Soviet leadership to use economic tools that foster greater efficiency and productivity. At the same time, the economy requires greater sectoral balance in order to provide a stronger base for economic growth.

These concepts, however, have provoked considerable opposition from those sectors traditionally benefiting from the current economic structure.

The Soviet leadership's interest in an effective growth strategy reflects their concern over the ability of the economic base to support the strong and continuing commitment to the defense effort. Faced with a defense growth dilemma, both political and military leaders are divided on which course is best for defense and the economy over the next 5 to 20 years. Should the Soviet's choose to continue on their present course, the high rates of defense growth will most likely mean further declines in overall economic growth. The industrial base would continue to erode and could eventually adversely affect rates of growth in the defense sector.

If short-term remedies are successful, the Soviets may adopt in the future only marginal changes to the economic structure. Such changes in the past have not facilitated longrun economic growth, but could provide a noticeable improvement over the present economic situation.

If General Secretary Andropov is serious about providing the economic growth necessary to support the defense effort, the leadership will need to consider and implement fundamental changes. The military leadership's desire for greater defense potential in the long run may lead them to accommodate such changes. The difficult part of making these changes is finding a politically acceptable course which maintains the existing party power structure with the attendant overall centralization of the Soviet system.

Senator **Proxmire**. Before you go into the Chinese analysis, which both of us, I am sure, are very anxious to hear about, if it is all right with Congressman Lungren, we could go ahead with questioning now on the Soviet before we get into the Chinese.

DEFENSE INDUSTRIAL BASES OF THE UNITED STATES AND THE SOVIET UNION

First, do you have any kind of comparison between the defense industrial base of the United States and the Soviet Union? We have a rough GNP comparison. GNP is so comprehensive that it does not mean a great deal, in my judgment, as to the military capabilities. It does not mean as much as it would if we also had the comparison of the industrial base on both sides. Do you have anything like that?

General **Bissell**. I do not believe that we do, although there may be something our experts will know about.

Mr. **Crawford**. We publish each year, the Secretary of the Department of Defense does, a comparison of NATO-Warsaw Pact military production, comparing the United States and Soviet production rates. Would that be adequate?

Senator **Proxmire**. That's not exactly what I had in mind, because the military base would include much more than the military-production capability. For instance, in World War II we were able to convert our enormous capability of producing automobiles to producing tanks rather quickly, and we were able to use other facilities for producing planes and so forth. The result was that we had an immense production. I just wondered if there was anything like that that would compare, including the potential production on both sides.

I realize I am asking for something that may not have been worked up at all, but it seems to me it would be more useful, because the GNP includes all kinds of things, every play on Broadway, every movie, and so forth as part of GNP. It has nothing to do with military potential.

Mr. **Crawford**. Mr. Chairman, in preparation for this testimony we looked into the relative capacities and the percent of capacity that the Soviets and the United States were operating. Such things as our tank industry. We found that the two were operating at approximately the same rate of capacity. However, the Soviet basic capacity is much, much larger than our own. I can give you the precise figures.

Senator PROXMIRE. The Soviet—what capacity is larger than our own?

Mr. CRAWFORD. The Soviet capacity to produce tanks is much larger than our own. But the percent we are operating at is very, very similar. It is true in World War II we were able to convert the River Rouge plant's vast civil facilities to military production.

Senator PROXMIRE. I am not sure you understand what I was asking. I was asking for the total capacity. I realize that they produce more tanks; we produce more of a few other things.

General BISSELL. I think, in answering your question, Mr. Chairman, that whereas we may have some particular categories of things where we have done comparison of capacity, there is probably, at least to my knowledge——

Senator PROXMIRE. Well, whatever you can put together I would appreciate.

[The following information was subsequently supplied for the record:]

COMPARATIVE INDUSTRIAL CAPACITY

As an foreign intelligence agency, DIA does not hold information on the defense industrial base of the United States. [Security deletion.]

The following data on the active Soviet military materiel producers is offered as a series of indicators as to the size of that base. These annual levels of output could be reached about 24 months after industrial mobilization without opening any additional facilities.

ITEM

Tanks
Other Armored Vehicles
Towed Artillery
Self-propelled Artillery
Bombers
Fighters
Helicopters
ICBMs
IRBMs

[Security deletion.]

MILITARY BURDEN

Senator PROXMIRE. Another question I have relates to the—you had a chart showing a tradeoff between a bigger defense buildup on the one hand and an industrial buildup on the other. Although the Soviet Union puts much more of its gross national product into the military than we do, a country like Israel, for example, puts twice as much of their gross national product into the military as the Soviet Union does, and we put as much as 50 percent of our gross national product into the military in 1944 at the height of World War II.

I just wonder if that is the same kind of limitation that was implied there. In other words, if they wish to put more than 14 or 16 percent of their GNP into the military, could they not really do that without hurting their industrial base, if they had to?

General BISSELL. I think the impression of our analysts and their position is that if they continue to do that for an extended period here in the short term that it will eventually impact on their longer term growth rate.

Senator **Proxmire**. How can Israel do this year after year?

General **Bissell**. Israel's investment is due to a great deal of support and external assistance, primarily from the United States. I think that is one of the underlying supporting features of that, as I understand it.

DEFENSE SLOWDOWN

Senator **Proxmire**. In my opening remarks I referred to a table you provided, which you showed in your oral presentation, which does not appear in your longer written statement. We have already gotten you to agree to put that in. The table shows the slowdown in the growth rate of Soviet expenditures for defense from 4 percent, to 3 percent, to 2 percent over a period of about 12 years. What are the causes of the slowdown and what significance do you place on the slowdown in the Soviets' expenditure for defense?

General **Bissell**. I think there were two causes that we mentioned. One is the adding of increments to an increasingly larger baseline would have some impact on narrowing or reducing that to some degree. I think another concern that we have that is expressed in this is the rate at which new weapons complete their R&D process and are introduced into the operational forces, and the rate at which that is done could have a significant impact on that growth or that apparent growth at any point in time.

We could find, as we collect more data on those production rates downstream, that as the new systems which we expect——

Senator **Proxmire**. Why do they have to stretch out that production?

PROCUREMENT

Maybe it would help if I asked the next question along with this. It seems to me that the Soviet military procurement has been more or less level since 1976 and that the leveling of procurement accounts for the slowdown in overall defense growth. They are spending more on personnel, more on research, more in other areas, but not on procurement.

General **Bissell**. I think one of the underlying features of the continued impact or growth is the same thing we have experienced in our weapon systems as we evaluate what it costs them to do their weapon systems. As we see them producing much more sophisticated and complex weapon systems we impute to them a higher cost in producing those weapon systems, as we have experienced.

Senator **Proxmire**. Do you agree that there has been a leveling in procurement?

General **Bissell**. In the total dollars, sir, and the amount of equipment?

Senator **Proxmire**. Total dollars.

General **Bissell**. The chart that we have shown reflects that, the movement toward that percentage.

Mr. **Michaud**. At about [security deletion] percent growth.

Senator **Proxmire**. In procurement?

Mr. **Michaud**. We feel that there is positive growth in the procurement line still, whereas CIA says it is [security deletion], very little growth.

Senator **Proxmire**. You think it is a little higher than the CIA?

Mr. **Michaud**. We think it is a little higher.

Senator **Proxmire**. They say its around [security deletion] or maybe a little bit higher, but not much, and you say it could be [security deletion] percent.

Mr. **Michaud**. We think it is between [security deletion] percent.

Senator **Proxmire**. The committee staff has calculated the growth rates for the period of 1972 to 1981, showing the trend in the first 5 years and the second 5 years of that period. The table compares the growth of GNP, total defense and military procurement. It highlights the fact that the slowdown in the defense sector seems to correlate with the slowdown in the GNP. Do you agree that there appears to be a correlation?

Mr. **Michaud**. We think there is probably some connection between the leveling off of procurement of weapon systems and the declining growth in the economy. Part of this stems from the problems they have been having in agriculture, and the fact that they have had to devote such a large percentage part of their transportation systems to handling of foodstuffs has had an impact on defense industrial activities. We think this is a result. Rather than a change or shift in priorities away from defense, it is an attempt to try to cope with their food problem that they have had in the last 3 years.

Senator **Proxmire**. The chart I have here, which the staff put together from intelligence data, shows the GNP growth in 1972–76 was [security deletion] and the total defense activities was precisely the same, [security deletion]. The next 5 years, 1977–81, GNP growth slowed very dramatically, to [security deletion], a little more than [security deletion]. And total defense activities slowed even further. They slowed to [security deletion]. So that would indicate that there was a parallel production in both GNP growth and also defense activities.

Mr. **Michaud**. The declining growth in constant ruble defense expenditures is a CIA calculation. We do not think that is in the proper way of calculating the burden. We think it is much more appropriate, as we do here in the United States, to use the current ruble expenditures and the current GNP calculations. What they have done is made considerable adjustments to eliminate the inflation rate, and in so doing have added another element of uncertainty in their whole calculation for purpose of burden calculation.

Senator **Proxmire**. Yes, uncertainty. But if you disregard inflation—after all, what we are looking for is the real growth. We correct virtually all of our statistics for inflation so that we know whether there was a real increase. When we report an increase in the gross national product it is always in real terms, never in current terms. If we say it is in current terms, then we know it does not mean much. Once we correct it for inflation we have something we can rely on as an actual increase.

General **Bissell**. I think the CIA estimates, though they have not been published as yet, still show—the range of rate that they show is still the same, [security deletion]. That is their estimate.

Senator **Proxmire**. I want to ask just one more question.

DEFENSE SECTOR NOT INSULATED

Do the trends suggest that the defense sector has not been insulated from the slowdown in the economy, and that if Soviet officials did not plan the slower defense production growth rate they at least did not take steps to assure continuation of the earlier faster rate?

Mr. **Michaud**. I do not think it is a question of accepting it, sir. I think it is the result of the conditions in the economy, having to cope with the transportation and agricultural problems. That is why we predict that they are going to be back in the 3-percent growth stream in the future. We feel that defense is still the No. 1 priority and we retain its past historical growth rates.

General **Bissell**. I think in the context that you present that, yes, it shows that defense has not been insulated, that it has been adversely affected along with the gross national product.

FUTURE ECONOMIC GROWTH

Senator **Proxmire**. When you say it will grow 3 percent in the future, you're saying that you estimate the GNP will also grow 3 percent, is that right?

Mr. **Michaud**. We have not made any projections on GNP, but it is quite possible that they will get back to the 3-percent level. As a matter of fact, the results of 1983 so far have exceeded their plan for the first 4 months at 4.4 percent. If that is continued throughout the year, they will achieve in excess of 4-percent growth for 1983.

Senator **Proxmire**. How reliable has that kind of flash estimate been in the past? Have they not had to readjust it?

Mr. **Michaud**. Not their actual figures; they have adjusted their plan figures, of course, as time goes on. But their actual figures, once they have published them, they stay by them pretty much. Minor adjustments for statistical discrepancies.

Senator **Proxmire**. I call on Mr. Lungren.

GNP COMPARISONS

Representative **Lungren**. Just one preliminary question I have, and that is GNP. How viable is the comparison between our GNP and the GNP of the Soviet Union? It occurs to me that, as the Senator suggested, our GNP includes those plays that open on Broadway as well as those that close. We are a consumer-oriented society. They, because of the makeup of their leadership, have not had that. Are we really looking at things that are similar enough that they give us a handle on it?

Mr. **Michaud**. GNP is calculated in the intelligence community in two ways. The CIA does it in great detail, looking at every sector of the economy, adding to a total. Of course, they are susceptible to the Soviets published statistics, as we are. We tend to accept the aggregates, the national income statistics and add to it the service sector and depreciation, which they, of course, do not consider as part of their industrial output.

So we generally accept the published Soviet national statistics as being valid. Both agencies do that.

General **Bissell**. But there is a considerable difference in the makeup of their society and their investment and our society.

FUTURE DEFENSE GROWTH

Representative **Lungren**. When the Senator was talking to you about the average annual growth rates with respect to overall defense expenditures and based on the committee staff analysis how that has gone down even faster than the rate of growth of GNP, and particularly in the area of defense procurement, I did note that in paragraph 8 of your testimony you say that "it is currently estimated that the number of new weapon systems and major modifications to be developed and introduced during the decade of the 1980's exceeds the number of systems introduced in either of the previous two decades." I would assume that if your assumption is correct that we could look for increased rate of growth of defense procurement in a major way. Is that right?

General **Bissell**. It could be influenced by a number of factors. One would be the rate of acquisition and the cost of those particular weapon systems which we give credence to being more complex, more costly to produce. It also could be influenced by the rate at which they are introduced to replace existing inventories. So it is possible that these systems, much as we are influenced with a fixed amount of resources, would be fewer.

Representative **Lungren**. I was just trying to get a fix on it here. If you indicate they are going to introduce more and actually have them online in one decade than we saw the two previous decades, it would seem to me that you are talking about some increase in procurement.

General **Bissell**. There is certainly the potential for that. What we say is we have seen more new systems under R&D and testing that the Soviets will buy some quantities of. Again, the question of how fast they will buy them and how fast they will equip their organizations could be paced by the resource decision, how much they are going to invest.

MILITARY BURDEN

Representative **Lungren**. With respect to comparison of the United States and the Soviet Union in terms of percentage contribution to defense, is there a distortion in such a comparison by virtue of the fact that we have what we now call an All-Volunteer Force, we actually have to pay our people in comparison to their rates of pay? Is that a substantial distortion? Or is it a distortion at all?

Mr. **Michaud**. If anything, that would tend to understate the Soviet burden of defense, because we use in the ruble instance the actual ruble pay that the Soviet soldiers get. So in the sense we do tend to understate the burden to the Soviets of their military.

Representative **Lungren**. What is the comparison between what we pay our soldiers and what they pay theirs?

ALCOHOLISM

Mr. **Michaud**. The average U.S. pay versus the average Soviet pay? I am afraid I couldn't answer that question offhand. I can provide you the information. I imagine it is probably about $15,000 versus probably 800 to 1,000 rubles on the Soviet side.

Representative **Lungren**. I noticed one thing that appeared on one of the charts that you did not actually state, General, was talking about some of the difficulties the Soviets have in their whole industrial economy, and one of the problems related to worker productivity, and you attributed that to a number of causes, one of which was alcoholism. I have wondered about this, because I have read the articles. I read something by Solzhenitsyn lately that talks about it. Frankly, if you read it literally, it looks like everybody is on the sauce all the time. Sometimes it tends to make me think of how outsiders must look at the United States with respect to our drug problems and our alcohol problems.

Is it a greater problem with the Soviet Union than our alcohol and drug problem is to the United States? Are those of us who are looking for problems in the Soviet Union overstating it when we talk about that as a contributing factor to their lack of productivity? Is it getting worse? Is it the same? Or is there any way that we can actually gage that at the present time?

General **Bissell**. I think our impression is that from the degree of concern, at least expressed by General Secretary Andropov, they have focused on it as one of their major concerns, and we have seen references in the literature to the fact that this is a significant and a serious problem. Some of the other factors include just the time spent in queues or in lines to try to compete for the available, limited numbers of consumer goods and things that add to this factor.

I do not know that we have gaged it relative to the United States as to how serious a problem it is. We know that it is, for example, a serious problem with their forces in Afghanistan, both alcohol and drugs. I think we have to give it credence as being a significant problem.

Representative **Lungren**. I think alcoholism and drug abuse is a serious problem in the United States, but I would not suggest it is such a serious problem that it is absolutely creating difficulties for our overall industrial output based on workers' contribution. Is it worse than that? Or is it something that we are just sort of raising as a problem but not as a significant problem?

Mr. **Weinstein**. Some studies that have been done over the past few years show that the primary cause of mortality for prime-age males in the age 20 to age 44 category are such things as alcoholism, industrial accidents, which are often tied to alcoholism.

Representative **Lungren**. They do not have an OSHA.

Mr. **Weinstein**. No; they do not. Also, heart disease, which is also directly related to the degree of alcoholism.

So it is a serious problem in terms of affecting overall industrial production, not only quantity, but quality of production as well.

WESTERN TECHNOLOGY

Representative **Lungren**. General, with respect to the Soviet Union's use of Western products or Western technology in potential military applications, have we seen a slowdown or an increase? Or has it remained rather constant in terms of its contribution to their increases in military capability over the last 5 years? Has there been any change in pattern on that?

General **Bissell**. I think that we have only recently, within, I guess, the last 2 years, become aware of the extent to which the Soviet Union was capitalizing on Western technology through various means. The full impact of that, in terms of the savings in R&D costs and in modification of their equipment to counter our capability as well as enhancing their own systems' capability, has really been major. Though we are more aware of it today, I am not certain that we have been able to stem the flow.

Representative **Lungren**. One of the concerns I have, again going back to GNP growth figures and how it affects the Soviet Union versus how it affects our ability to make military application, a lot of our advances not only occur in the strict military side, but we have that on the consumer side where we spend trillions of dollars virtually in developing many advances in the high-tech field that are utilized for nonmilitary purposes but could have military application. If the Soviet Union sort of can short circuit that, that is, they become ready purchasers of what is developed here, a downturn in GNP may affect our ability to accelerate even further, but if those things are available for purchase, the Soviets are still able to capitalize on it.

MILITARY PRIORITY

Some have stated that the Soviet Union has something close to a war economy. I do not want you to utilize those words if you think those are in appropriate words. How would you respond to a statement like that based on the figures that you have today? It is obvious they place a higher economic priority on overall defense as a percentage of their total economic picture. But how would you respond to a statement such as that? Is their economy truly driven by the military complex? Or is that overstating it?

General **Bissell**. I think the way I would choose to answer that is my impression is that the soviets primary instrument of national influence or power is the military arm and their military forces. They do not really have an ideology that is very attractive elsewhere in the world; they certainly have not moved anywhere in a very significant way with economic assistance. So their entree to the world, their status as a superpower, depends almost exclusively on their appearance as an overwhelming military power, and therefore it is their overriding priority to maintain superpower status and compete throughout the world for influence in those areas where they have interest.

I don't think that they are going to change that thrust very significantly unless they find some other way either economically and/or ideologically to present themselves.

FUTURE DEFENSE GROWTH

Senator **Proxmire**. General, in your written statement you say at page 64:

> In the medium term (5 to 10 years), the required growth in other economic sectors needed to stabilize the economy could mean slightly smaller increases in the defense sector, in order for defense growth to continue to increase in the long term.

Are you suggesting that the Soviet defense may continue to increase at about 2 percent annually over the next decade as opposed to the earlier higher rate? You expect about a 2-percent increase over the next 10 years. You have said there will be a bigger increase this year, but I am talking about the longer term.

General **Bissell**. I guess the question is whether we foresee that it is going to be 2 or 3 percent over the next 5 to 10 years.

Senator **Proxmire**. Ten years.

General **Bissell**. I think the base upon which we have made our projections actually is over the period from 1970 to now, which is about a 13-year period, and that on average has been about 3 percent. That is what we have projected on out. It could be that what we are seeing now in terms of a downturn is more fundamental than we have fully apppreciated. As I say, we have given credence to things such as the cyclical introduction of new weapons systems and those sorts of things as factors. But it could very well be 2 percent.

Senator **Proxmire**. You say "slightly smaller increases in the defense sector." Smaller than what? If you have slightly smaller increase in the defense sector and you have had a 2-percent increase, I do not see how it could be 3 percent in the future.

Mr. **Weinstein**. One of the problems—our analysis here is primarily based on looking at our current ruble projections, our current ruble estimates of defense spending, not of the estimated dollars costs. So when we look at Soviet policies we are trying to look at it from the perspective of the Soviet leadership, that is, in current rubles.

Senator **Proxmire**. Can you give us an estimate of what growth rate you are projecting? It is 2½? 3? 3½?

Mr. **Weinstein**. We are really talking in relative terms. We are trying to stay away from specifics because, as you well know, economics is not terribly great at accurate projections over the next 10 years, what will be in 10 years.

Senator **Proxmire**. It is possible that Moscow has already adopted a policy of slower defense growth in order to strengthen the economy? And if so, does that not alter the view that the Soviets are trying to achieve military superiority in the near or medium term?

Mr. **Weinstein**. We have not seen any evidence yet of anything that would suggest a policy decision to slow defense. we do not see any resources being allocated away from the military; we continue to see a large chunk of their national resources devoted to the defense sector.

IMPEDE SOVIET ECONOMIC GROWTH

Senator PROXMIRE. Is it your view that because a strong economy would help Moscow strengthen its military that we should do what we can to impede Soviet economic growth or refrain from doing anything that would help it grow?

General BISSELL. In my view, yes, sir. I think that anything that we do to assist their economic growth for at least the near term or intermediate term is going to be translated into their primary instrument of national policy, which is military forces.

TWO-PERCENT GROWTH RATE

Senator PROXMIRE. In your statement you describe the Soviet Union as stagnating, its economy stagnating with a 2-percent growth rate. Is defense also with a 2-percent growth rate?

Mr. WEINSTEIN. In terms of the resources committed to the defense sector, no. We continue to see—and here again, this is the difference between the dollar and the ruble measure. Our ruble measure, which is attempting to show what the Soviets themselves commit in the way of economic resources, we continue to see that growing at fairly rapid rates, along with the historic trend of current ruble expenditures of around 7 percent.

Senator PROXMIRE. Our problem is you seem to be saying that the gross national product of the Soviet Union has been stagnating at a 2-percent rate of growth. Then you say that the 2-percent growth rate for defense is not stagnating. It seems like you have a different standard for GNP than you have for defense. This is your table. I am talking about working table 19.

RUBLE ESTIMATE

Mr. WEINSTEIN. These are dollar costs, estimating what it would cost to produce these same things in the United States as opposed to comparing a Soviet ruble measure with another Soviet ruble measure.

Senator PROXMIRE. Would there be a difference in rubles? Would there be a 7-percent increase in rubles? Or does the 7 percent apply to the current?

Mr. WEINSTEIN. We believe that in current terms, measured in rubles, it is about 7 percent.

INDUSTRIAL PRODUCTION

Senator PROXMIRE. You mention in your written statement, page 37, that industrial production rose to 4.4 percent for the first 4 months of 1983. How likely is it that that rate will be maintained throughout the year? And how do you explain the improved performance?

Mr. WEINSTEIN. It is probably unlikely that that rate will be maintained throughout the whole course of the year. The early period of 1982 was particularly bad, so the comparisons are very favorable. However, these growth rates are substantially above even what was planned, and should they be able to maintain somewhere close to that for the course of the year, they will have very good performance. In terms of what accounts for it, we believe that a large part of that is Andropov's labor discipline campaign. That kind of thing has some short-term impact. He has made it fairly clear that he has some interest in providing better circumstances for the workers. Some of the steps he has taken have had some positive effects.

Senator PROXMIRE. You say in your regular presentation, as I recall, that you did not expect this to be long term; it was a short-term spurt, and you did not expect it to continue, certainly not at that rate.

Mr. WEINSTEIN. No, we do not.

AID TO EAST EUROPE

Senator PROXMIRE. What significance is there in the fact that the Soviets spent $15 billion for economic aid to East Europe in 1982? These costs were lower than they were in 1981.

Let me also ask, does the United States and the West have an interest in seeing these costs rise or fall?

General BISSELL. I think you have to look at it in several contexts. In terms of the military threat posed by an opposing alliance, to see the difficulties that the Eastern European countries are in should give us some solace in that it puts an added burden on the Soviet Union in terms of how they will meet those requirements or whether they will meet them at all.

I think in my own view that we should allow them to try to demonstrate the lack of efficiency of their system by trying to solve the problems associated with that.

Senator PROXMIRE. How do you interpret the fact that while U.S. sanctions against Poland were taken in part to increase Moscow's economic burden of helping Poland the Soviets reduced their foreign aid to Poland in 1982?

General BISSELL. I think certainly the trade relationship between the Soviet Union and Poland as well as the relationship between the parties were under particular stress at that point in time. I can only surmise that this contributed to the reduction in the normal discourse there and the normal trade activities that would have caused a net reduction there. Perhaps even some indirect pressuring on the leadership.

Mr. WEINSTEIN. I would add one thing to that. Some of the East European countries were required to divert some of their trade to Poland, diminishing somewhat the impact on the Soviet Union immediately.

Senator PROXMIRE. Congressman Lungren, do you have any more questions?

ARMS SALES TO THIRD WORLD

Representative LUNGREN. I would just like to ask a couple. You mention in your testimony, General, about the Soviet Union having a substantial increase over the last number of years in arms sales to the Third World. In fact, how are these Third World countries able to afford these arms? Does the Soviet Union extend them rather good purchasing arrangements? Are the Soviets losing on that? Are they willing to lose money on these for the influence in the Third World?

General **Bissell**. Their policies and approach to the Third World is varied. In many cases they have—in the early days they have used barter. We have reason to believe that at least some portion of the recent Libyan purchases have involved a bartering of Libyan oil for weapon systems that were provided. But basically, they are very opportunistic in the way in which they provide military arms, giving the equivalent of grant aid or very long term, low interest loans to finance their exports.

CONVERSION TO CONSUMER PRODUCTION

Representative **Lungren**. You mentioned that with the Andropov accession to power we now have a leadership that is more willing to acknowledge the scope and nature of economic problems, appears more willing to accept the necessity of limited change as a precondition to improved overall economic performance. If the leadership had the mind to, would it be possible for the U.S.S.R. to shift very easily their resources into production of consumer goods? Are they of a structure at the present time that they could make such a shift if political pressures demanded it?

General **Bissell**. I would turn it over to a more expert witness. But I believe that their system is so structured and the investment that they have to work with right now would make it difficult for them to do that rapidly. I think it would take some time, even if they made a decision, to actually modify their infrastructure to achieve such purposes.

Mr. **Weinstein**. I think the general is quite right. Also, one of the thoughts that comes to mind, of course, is taking resources that are being used for military production and changing those to civilian production. But in general they are not substitutable one for the other, so that it would be very difficult in the short term to make those changes.

Representative **Lungren**. Is part of that because of the highly centralized nature of decisionmaking in their industry?

Mr. **Weinstein**. That is part of the problem. Also, it is simply some of the production functions, the technological relationships. It is very difficult to take a plant that produces missiles and convert it to producing refrigerators.

Representative **Lungren**. Thank you.

Senator **Proxmire**. I do apologize to Congressman Lungren and to you, General, because I do want to ask two more questions very quickly. They do not relate to what we have been asking before.

MILITARY INFLUENCE UNDER ANDROPOV

Does the military establishment have more or less influence under Andropov than under Brezhnev? Do you have any idea, any feel about that?

General **Bissell**. I think the situation is a little too early for us to be able to tell precisely if there has been a shift. I think that their committee structure, with the military representation, they are equally heard in all the fora and they are equally influential. I do not know that we are in a position yet to determine if there has been a significant or noticeable shift.

Senator **Proxmire**. Can you identify the elements in the Politburo more inclined toward arms control under Andropov than they were under Brezhnev?

General **Bissell**. We will take a look at that for the record.

Senator **Proxmire**. Will you take a look at it and give us your opinion for the record?

[The following information was subsequently supplied for the record:]

Politburo Membership

[Security deletion.]

ECONOMIC TRENDS IN CHINA

General **Bissell**. Now shifting attention to a short discussion of economic trends in the People's Republic of China. In an attempt to overcome fundamental economic problems, the Chinese leadership is attempting to build the foundation for a future society that will give China a strong voice in both regional and global affairs.

[Slide.]

DEFENSE INTELLIGENCE AGENCY
UNITED STATES OF AMERICA

CHINA'S ECONOMY
IN THE 1980s:
BUILDING
THE FOUNDATION
FOR THE FUTURE

G0257.21

General **Bissell**. In order to illustrate how the Chinese are going about this modernization drive, I will be focusing on the plans and results of both the domestic and international aspects of the Chinese economy plus their interrelationships with military development.

[Slide.]

MAJOR ECONOMIC TOPICS OF DISCUSSION

- DOMESTIC
- INTERNATIONAL
- MILITARY

G0257.2

General BISSELL. Like almost all other countries, China has been constrained by numerous economic problems aggravated by the world recession. Acknowledged new difficulties such as unemployment, inflation, and budget deficits have been compounded as the push for modernization has intensified the pressure on the major structural problems that you see reflected on this slide.

[Slide.]

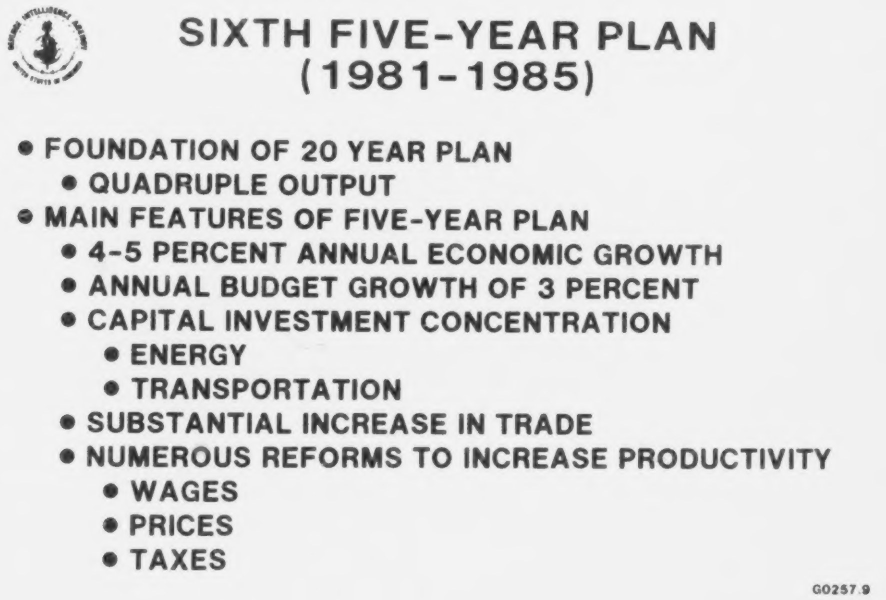
MAJOR ECONOMIC PROBLEMS

- RELATIVELY NEW
  - UNEMPLOYMENT
  - INFLATION
  - BUDGET DEFICITS
- STRUCTURAL
  - ENERGY SHORTFALLS
  - TRANSPORTATION BOTTLENECKS
  - INDUSTRIAL PRODUCTION IMBALANCES
  - LOW LABOR SKILLS & PRODUCTIVITY
  - INEFFICIENT MANAGEMENT
  - SLOW TECHNOLOGY ABSORPTION

G0257.8

General **Bissell**. In order to alleviate these problems in the long run, the Chinese are in the midst of the sixth 5-year plan, which runs from 1981 through 1985. The major bottom line goal of this economic plan, which was announced only last year, is to lay the foundation and begin building the framework of the 20-year objective of quadrupling the annual value of industrial and agricultural output by the year 2000. The most important features of the 5-year plan include a modest annual economic growth rate of about 4 to 5 percent, slower growth of the national budget at about 3 percent annually, capital investment emphasis on energy and transportation, a substantial increase in foreign trade, plus various internal reforms to stimulate productivity.

[Slide.]



SIXTH FIVE-YEAR PLAN
(1981-1985)

- FOUNDATION OF 20 YEAR PLAN
  - QUADRUPLE OUTPUT
- MAIN FEATURES OF FIVE-YEAR PLAN
  - 4-5 PERCENT ANNUAL ECONOMIC GROWTH
  - ANNUAL BUDGET GROWTH OF 3 PERCENT
  - CAPITAL INVESTMENT CONCENTRATION
    - ENERGY
    - TRANSPORTATION
  - SUBSTANTIAL INCREASE IN TRADE
  - NUMEROUS REFORMS TO INCREASE PRODUCTIVITY
    - WAGES
    - PRICES
    - TAXES

G0257.9

General **Bissell**. China's announced economic growth in 1982 exceeded the plan and was considerably above increases in 1981. Although these advances look good on the surface, they have caused imbalance problems and pressures on transportation and other service sectors. In addition, even though energy output increased, shortages continued to exist.

[Slide.]

CHINESE ECONOMIC RESULTS
(1981-1982)

ECONOMIC SECTOR	1982 PERCENT CHANGE OVER 1981	1981 PERCENT CHANGE OVER 1980
GROSS NATIONAL PRODUCT	9.0	3.0
INDUSTRY	7.7	4.0
HEAVY INDUSTRY	9.9	-4.5
LIGHT INDUSTRY	5.7	13.6
AGRICULTURE	11.2	4.0
ENERGY	5.7	-1.5

G0257.11

General BISSELL. Specific 1983 tasks include the areas of concentration shown on this vu-graph. In short, China is persisting in its efforts to restructure the economy to meet its long-run objective of modernization. Although economic data for 1983 are only preliminary, early indications are that last year's growth in output is continuing but structural imbalances remain.

[Slide.]

MAJOR AREAS OF CONCENTRATION IN THE 1983 ECONOMIC PLAN

- INCREASE GRAIN PRODUCTION
- IMPROVE INDUSTRIAL PRODUCTION MIX
- DECREASE BUDGET DEFICIT
- CONTROL CAPITAL INVESTMENT
- STRENGTHEN TECHNOLOGY RESEARCH

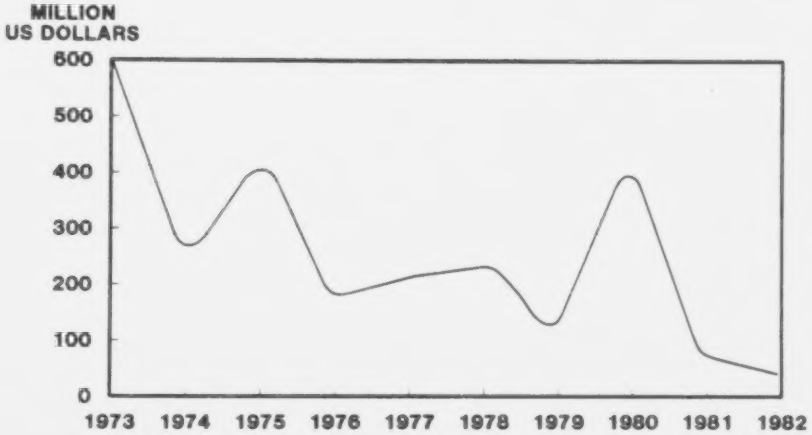
G0257.7

FOREIGN AID

General BISSELL. In addition to the domestic economy, foreign aid is a vital aspect of China's international relations that also is being utilized in the modernization drive. In keeping with the severe cutback in foreign aid commitments in 1981, last year's extensions were a record low of only $41 million. It seems clear that the Chinese are attempting to minimize foreign outlays to conserve resources for domestic development.

[Slide.]

CHINESE ECONOMIC AID EXTENDED TO LESS DEVELOPED COUNTRIES



G0257.17

General BISSELL. At the same time that Beijing is cutting back on its foreign aid extensions there is a push for increased foreign assistance to China. This type of aid is sought both through bilateral arrangements with other countries and multilaterally from international organizations and banking consortiums. Assistance consists of loans at low interest and long repayment plans plus grants with no repayment. Although there is the potential for China to receive large amounts of assistance, especially from international organizations, they have so far been cautious for three primary reasons. Not only does Beijing fear overextending itself, but there is concern over the country's ability to effectively absorb outside help. At the same time, China does not want to cause an assistance backlash with other developing countries which might accuse Beijing of monopolizing large amounts of the limited aid that must be shared.

[Slide.]

ECONOMIC AID RECEIVED

- DRIVE FOR MORE AID
- DIVERGENT SOURCES
  - BILATERAL
  - MULTILATERAL
    - INTERNATIONAL MONETARY FUND
    - WORLD BANK
    - BANKING CONSORTIUMS
- TYPES OF AID
  - LOW INTEREST LOANS
  - GRANTS
- CONCERNS
  - OVEREXTENSION
  - EFFICIENT ABSORPTION
  - LESS AID TO OTHERS

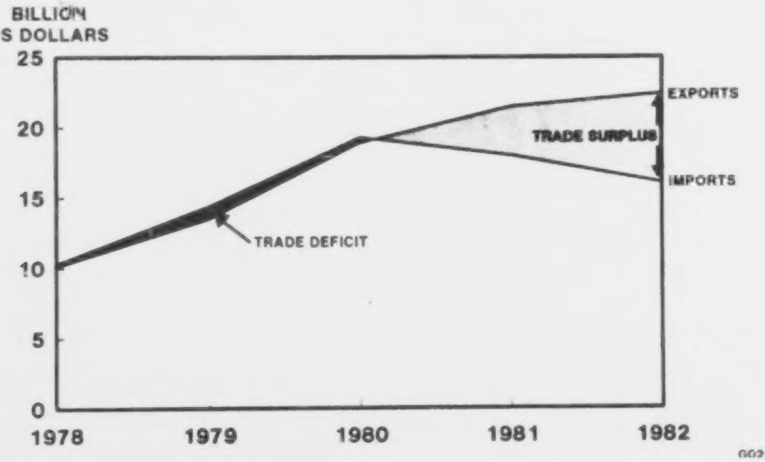
G0257.10

FOREIGN TRADE

General BISSELL. Recent Chinese foreign trade is another indicator of how Beijing has been conservative with its limited resources. Since 1980 both total Chinese imports and imports from the United States have been cut back while exports have continued to expand. As a consequence, the record high $6.4 billion surplus last year has enabled them to plan in the next few years for sizable future imports of technology and equipment, pay for sending students to the West, plus other activities designed to modernize all sectors of their economy, including the military.

[Slide.]

CHINESE FOREIGN TRADE



G0257.12

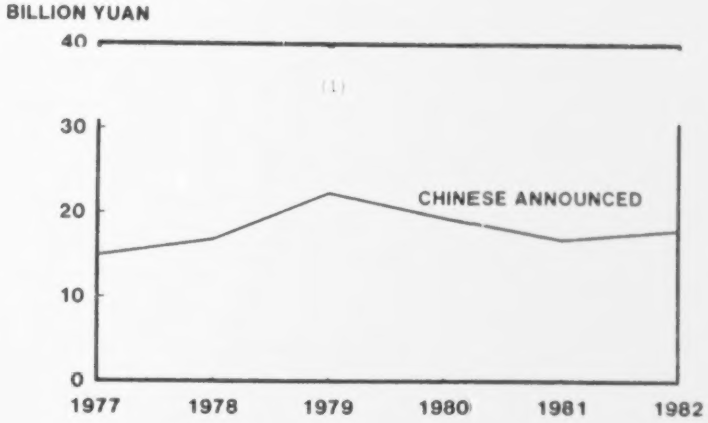
General BISSELL. An important aspect of long-range defense modernization is the continuing importation of industrial technologies which often have either direct or dual use application to the military. [Security deletion.]

MILITARY SPENDING

Chinese military expenditures have not been expanding significantly. Our estimate of total Chinese defense outlays is shown here in comparison with the figures announced by Beijing. As can be seen, the trend is very similar with a surge in 1979 for their war with Vietnam and generally level since then. The estimated value, however, is about [security deletion] the announced numbers because numerous categories such as research and development, procurement, construction, and retirement pay are excluded by the Chinese.

[Slide.]

COMPARISON OF ANNOUNCED AND ESTIMATED CHINESE DEFENSE EXPENDITURES



G0257.13

(1) Security deletion.

General BISSELL. Although at this time there is no dollar estimate of total Chinese military outlays, data for the procurement sector has been derived. As can be seen, since 1972 the value of Chinese procurement in constant terms [security deletion] dollars annually except for the 1979 Vietnam border war.

Senator PROXMIRE. You put that last chart in dollars and the Soviets you put in rubles. Is there any reason why you are discriminating?

General BISSELL. This is a military procurement chart, and that is the way we normally estimate. Soviet procurement is in dollars, as well, sir.

Senator **Proxmire**. I thought you had indicated the rubles were a preferable indicator of the growth rate.

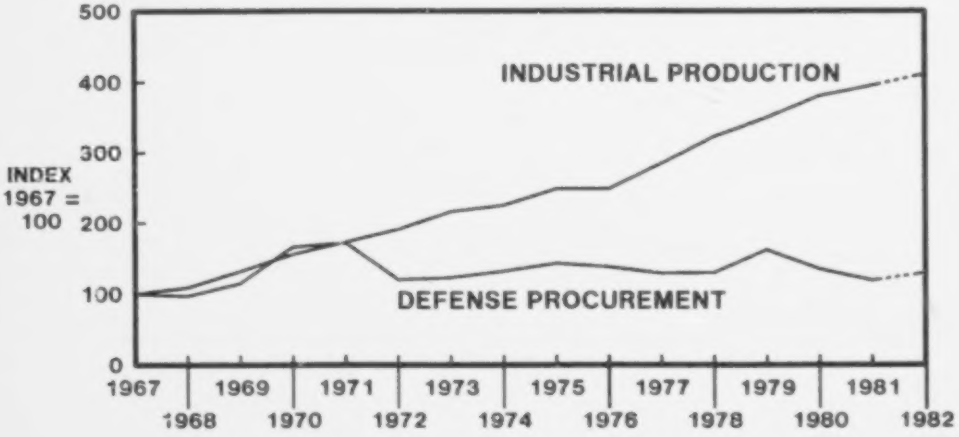
General **Bissell**. We estimate procurement of Soviet hardware in dollars. This is a chart that refers to and goes back to the 4-3-2. That's all based on dollars, and this is roughly analogous to that as the procurement aspect.

Senator **Proxmire**. OK.

General **Bissell**. Another indicator of the relatively low priority given to the military is this index comparison of defense procurement and industrial production. As is evident, the Chinese emphasis on heavy- and light-industrial growth has resulted in a steady increase in the civil sector while the military has been basically level.

[Slide.]

DEFENSE PROCUREMENT AND INDUSTRIAL PRODUCTION



G0257T.15

General **Bissell**. Military weapons production has been at a moderate level for the last several years for numerous reasons. As might be expected, older, unsophisticated systems are being slowly phased out, but technology and financial constraints have limited the quantities of more modern weapons. As part of its overall defense policy, however, a large production capacity exists and in some cases is being utilized to produce weapons, equipment, and ammunition for export. In addition to earning valuable hard currency, these sales are helping to keep defense production plants active.

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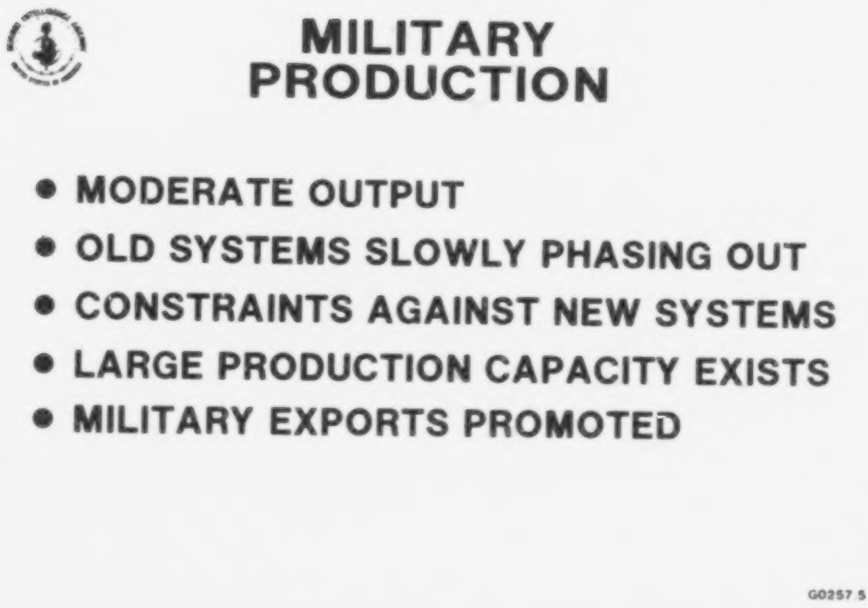


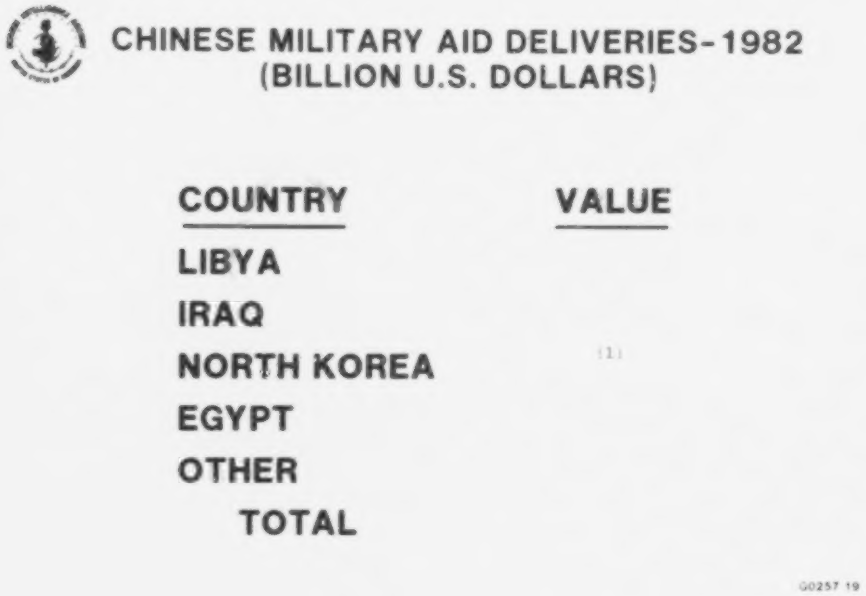
MILITARY PRODUCTION

- MODERATE OUTPUT
- OLD SYSTEMS SLOWLY PHASING OUT
- CONSTRAINTS AGAINST NEW SYSTEMS
- LARGE PRODUCTION CAPACITY EXISTS
- MILITARY EXPORTS PROMOTED

G0257 5

General BISSELL. In 1982, for example, Chinese military aid deliveries totaled [security deletion]. The major recipients and the value of deliveries are shown on this View-Graph.

[Slide.]



CHINESE MILITARY AID DELIVERIES-1982 (BILLION U.S. DOLLARS)

COUNTRY	VALUE
LIBYA	
IRAQ	
NORTH KOREA	(1)
EGYPT	
OTHER	
TOTAL	

G0257 19

(1) Security deletion.

General BISSELL. The expenditure analysis along with other intelligence indicates that military modernization remains as a relatively low priority. Certainly these are areas that are receiving priority funding and other resources must wait for other economic sectors to develop. Even with foreign technology imports, constraints on improvements will make rapid advancements very difficult. Consequently, military modernization will continue to be a long and slow process.

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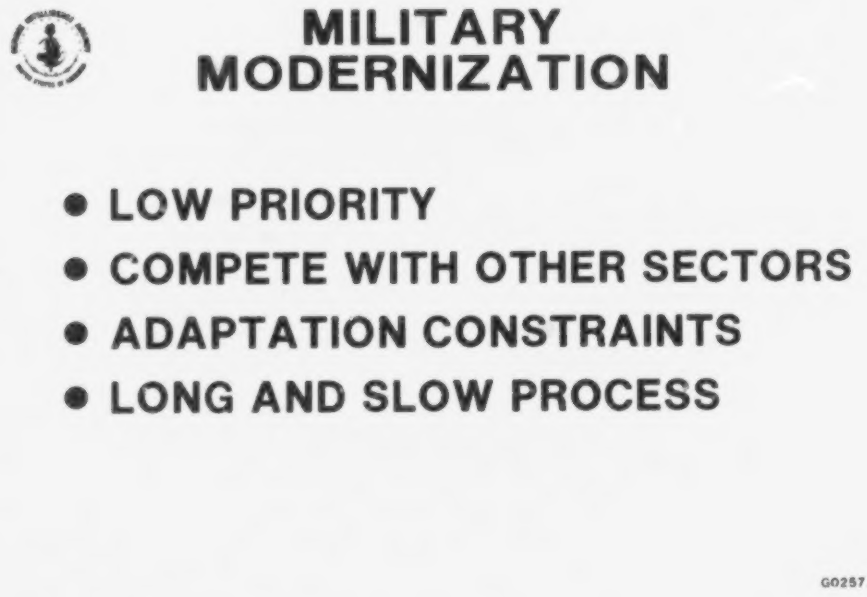

MILITARY MODERNIZATION

- LOW PRIORITY
- COMPETE WITH OTHER SECTORS
- ADAPTATION CONSTRAINTS
- LONG AND SLOW PROCESS

G0257.4

General BISSELL. The Chinese experience has apparently now convinced the Beijing leadership that simplistic, short-run resolutions to their complex problems do not exist. China clearly has severe economic problems that limit its resource allocation options. The People's Republic of China has taken the view that most of its overall military requirements are being met with low- and medium-technology weapon systems. They believe that over the long run industrial modernization is the only realistic alternative, with the military having to wait for other sectors to develop first, before the high-technology systems will be available to them. Indications are that this trend will continue.

[Slide.]

OUTLOOK

- NO EASY SOLUTIONS
- PROBLEMS LIMIT OPTIONS
- NON-MILITARY SECTORS HAVE PRIORITY
- TREND WILL CONTINUE

G0257.3

TECHNOLOGY TRANSFER

General **Bissell**. Mr. Chairman, this concludes DIA's presentation on the resource allocation issues in the Soviet Union and China. As we have discussed, both countries have economic problems, and the Chinese have made a decision to maintain the low priority of military modernization. The Soviet leadership, however, is continuing its historic commitment to the military.

Senator **Proxmire**. [Security deletion.]

General **Bissell**. [Security deletion.]

Senator **Proxmire**. [Security deletion.]

General **Bissell**. [Security deletion.]

Senator **Proxmire**. [Security deletion.]

General **Bissell**. [Security deletion.]

Senator **Proxmire**. [Security deletion.]

General **Bissell**. [Security deletion.]

Senator **Proxmire**. [Security deletion.]

At any rate, will you provide for the record the discussion of China's acquisition of Western technology together with examples of actual acquisitions?

General **Bissell**. Yes, sir.

[The following information was subsequently supplied for the record:]

Technology Acquisition by China

[Security deletion.]

NUCLEAR CAPABILITIES

Senator **Proxmire**. I understand the Defense Department has not made public a complete breakdown of China's nuclear weapons, including a breakdown of its inventory, numbers of warheads, delivery systems, throw weight, characteristics such as accuracy. What is the policy in this regard?

General **Bissell**. It is not made available to the public?

Senator **Proxmire**. You have not made public a complete breakdown of China's nuclear weapons, its inventory, its number of warheads, delivery systems. We have that on the Soviets; our own is well known; why don't we have that on China? We assume it is a relatively minor nuclear power, but it is still one of the six nuclear powers in the world, and I cannot see why we should not have that information.

General **Bissell**. [Security deletion.]

Senator **Proxmire**. [Security deletion.] We do not make any bones about the fact that the English and the French have nuclear capability. We talk about it; we know what it is; we publish it.

General **Bissell**. There may be a useful relationship in terms of presenting this data. It may be something that we just need to look at for a policy determination.

Senator **Proxmire**. Will you think this over and respond for the record to that at a little greater length?

General **Bissell**. All right.

Senator **Proxmire**. Thank you.

Will you provide for the record a breakdown of China's nuclear weapons, including a complete breakdown of its inventory? What I want is inventory, number of warheads, delivery systems, throw weight, and characteristics such as accuracy.

[The following information was subsequently supplied for the record:]

CHINA'S NUCLEAR INVENTORY

[Security deletion.]

1982 ECONOMIC GROWTH

Senator **Proxmire**. Last year you indicated the Chinese economy would grow at about 4 percent, far below the rapid rate necessary for it to begin achieving its objectives. Yet it grew 9 percent according to your statement. Its overall good performance surprised many Western experts. How do you explain China's rapid growth last year?

General **Bissell**. Obviously we underestimated.

Mr. **Mallon**. Mr. Chairman, not only did the Chinese surprise us, they surprised themselves. They had a very good record harvest, plus their industrial output both in terms of light industry and heavy industry exceeded their expectations by a considerable amount.

Senator **Proxmire**. But the reasons. Was this because of decentralization, for example?

Mr. **Mallon**. That was one of the reasons.

Senator **Proxmire**. Incentives that were provided for producers so they could keep some of what they produced and so forth?

Mr. **Mallon**. Yes, sir. That is part of the reason. Obviously, in the case of agriculture weather was a factor; they had basically good weather throughout the year; there were some cases where it was not good, but basically it was very well received. They also received additional investment from overseas. And their output through their decentralization and their incentive program, as you mentioned, was up considerably.

Senator **Proxmire**. Did you give us an estimate—perhaps you have—of what their growth rate is likely to be in 1983 and 1984?

Mr. **Mallon**. We did not give an estimate, but we would expect it to be about 4 to 5 percent.

Senator **Proxmire**. You go back to what you mistakenly estimated last year? You do not think they will be able to sustain that 9 percent?

Mr. **Mallon**. We do not think that they want to.

Senator **Proxmire**. You do not think they want to?

Mr. **Mallon**. No, sir.

Senator **Proxmire**. Why not?

Mr. **Mallon**. Because it is causing severe structural imbalances. A great amount of this growth in 1982 was through the heavy industrial sector—they produced machine tools, they produced steel, they produced other heavy industrial products. They cannot absorb these various products in their economy. They are having transportation problems; they are having absorption problems.

Senator **Proxmire**. Have you made any comparison with how that stacks up with the Japanese who had an enormously rapid rate of growth during much of the 1960's and 1970's?

Mr. **Mallon**. During the period of the 1960's the Japanese were much more of a consumer oriented economy than the Chinese are. Much of what the Chinese are doing today really is not in the same ball park that the Japanese were in the 1960's.

Senator **Proxmire**. Another surprising aspect of its 1982 performance was that heavy industry grew faster than the lighter industries despite China's avowed policy of promoting faster growth of lighter industries. What is the reason for that?

Mr. **Mallon**. Part of the reason is there was heavy investment in the heavy industrial sector caused by the decentralization. The heavy industrial facilities each had the opportunity to invest much more than the central authorities had hoped.

Another aspect is simply in their accounting procedures. A large, heavy industrial facility, for example, is now starting to produce light industrial products such as electric fans, washing machines, bicycles, perhaps other types of consumer goods. When this company reports its statistics to the central statistical bureau, this is reported as a heavy output because it is a heavy industrial facility. So the statistics are somewhat misleading.

MARKET SOCIALISM

Senator **Proxmire**. I have one other question. I have already asked it in part, but I want to be a little more detailed and specific. Perhaps the most significant development in China's economic policy has been the encouragement of decentralization and the promotion of private enterprise. Would you discuss these developments, give us your views on how far they are likely to go and their implications for China's system of central planning?

Mr. MALLON. Some people characterize the Chinese economy as market socialism.

Senator PROXMIRE. Market socialism?

Mr. MALLON. Yes, sir, it is not strictly socialism in that everything is publicly owned and centrally controlled. It is growing toward a more market society in that decisions by the managers are based on the market. In other words, there is no longer a quota system for many of the industries and many of the other facilities. There is rather "How much can you sell? How much of this particular product can you provide to the consumer?" If you make a product and it does not sell, then the profit of that particular facility will be less; bonuses for the individuals and the amount of capital available for reinvestment by that particular company or industry will not be as great if there is less profit. The central authorities are saying to the individual enterprises, "You show a profit, turn part of that profit over to the State, keep part of the profit for bonuses for the workers, and keep part of that profit as reinvestment capital."

POPULATION CONTROL

Senator PROXMIRE. I promised that would be the last question, but there is one other. We are all familiar with the drastic efforts of the Chinese to solve their terrific population problem. They have 1 billion people, I understand. The biggest country in the world by far. It has been a serious problem for them. I understand they are adopting very drastic means of holding down their population—one child per family and so on. You indicate you do not think it will work. Why will it not in a system like China where they have such a tremendous control of their people? Why would not a system like that work when it is obviously in their interest to be able to do so?

Mr. MALLON. In the case of the cities it probably will work. There is a much stronger control of the population in the cities; housing is much scarcer in the cities; jobs are much more controlled in the urban areas. In the rural areas you have two factors: One, you have the minority population, which comprises only about 6 percent of the Chinese population. But there are no controls on the minorities; there is no limit of this one child per family for the minorities.

Senator PROXMIRE. The minorities?

Mr. MALLON. The non-Han. The majority of the Chinese people are Han. That is their ethnic background. Six percent of the total population are non-Han and are called the minorities: The Mongolians in the north, for example; plus there are various Asiatic groups in the south and in the west; and there is no restriction on the number of children in these minority groups.

The other factor is that for the individual family in the rural area they do not see having one child as an advantage. In fact, they see that as a disadvantage. The fewer hands that you have means the fewer number of people that you will have in the fields to work and to provide food. It is a form of old age insurance, plus it is very practical in today's sense of being able to have more people work and more people to provide income for the individual family.

To a certain extent the Chinese policy of changing the structure of the rural communes away from everybody working toward one common goal and putting all of the grain and other products together and then drawing that which you need is changing to a work incentive program where you receive a particular portion of what you work for. If you have a smaller family, your income is going to be less; if you have two or three children, or four children, then you are going to be able to receive more income.

Senator PROXMIRE. Thank you.

[The briefing paper attached to General Bissell's statement follows:]

ECONOMIC ASSESSMENT OF THE SOVIET UNION AND CHINA

SUBMITTED BY MAJ. GEN. SCHUYLER BISSELL, DEPUTY DIRECTOR, DIA

SUMMARY

USSR

The Soviet Union's resource allocation pattern continues to reflect the leadership's commitment to a strong defense establishment. The economic base is expected to provide for further increases in the military effort and also support a slowly rising standard of living. Historically, these goals were easily attainable, so long as the nation had relatively cheap and plentiful resources to add to the production process.

By the end of the 1970s, however, it became increasingly more difficult for the economic base to provide for both rapid growth in defense and improvements in the lives of the average citizen. Several factors combined to complicate the economic picture. Several years of poor agricultural performance, which necessitated large imports, contributed to further congestion in an already overburdened transportation sector. The growth of the labor force slowed, and was compounded by low labor productivity. New capital investment was becoming less efficient, rather than more productive. However, the growth of the military effort continued, with the result that a rising share of economic output was being allocated to the military.

The rate at which the defense sector will be enlarged is not certain because the Soviet leadership has not yet effectively dealt with these problems. On the other hand, industrial growth is continuing in key sectors and the natural resource prospects are good. Yuri Andropov, succeeding the late Leonid Brezhnev as General Secretary of the Communist Party of the Soviet Union in November 1982 appears to have created a new environment for dealing with the economy. There now appears to be more willingness to openly acknowledge the nature of the economic problems and to discuss a range of possible changes within the context of centralized planning, which would improve overall industrial performance. Some actions taken since November, albeit relatively minor, appear to be having positive results. Nonetheless, debate on major economic strategies and structural changes continues, and it will probably be some time before any decisions are made, and even longer before any possible changes could be implemented. One thing, however, is clear: a strong economy in the long run is still a major objective but only if Soviet defense options are not adversely affected.

PRC

China's resource allocation patterns emphasize more of the overall growth of the economy than growth of the defense sector. The Chinese have decided that short term modernization of the defense sector as a whole is not as important as improving the long term prospects of the economy and of the defense sector. Industry, agriculture, and other civil sectors have a higher priority in the short term. At the same time, however, domestic research and development combined with Western technology imports are being utilized to improve selected military areas. The long term Chinese plan is to develop a firm foundation for the economy and greatly alleviate infrastructure bottlenecks and inefficient management.

In the post-Mao period since 1976, the Chinese have had serious difficulties in developing and implementing a realistic economic scheme. Early attempts to promote rapid growth were soon abandoned as unobtainable. An official retrenchment policy advocated readjustment and reorganization of both the domestic and international economic sectors. The current Five Year Plan, covering the years 1981-85, is much more pragmatic and its implementation has resulted in moderate advances in some sectors. The long range economic goal of quadrupling the value of agricultural and industrial output, however, will be very hard to obtain because numerous fundamental problems must be overcome. In the meantime the defense sector will likely receive added emphasis as the civil economy improves.

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1. INTRODUCTION: SOVIET UNION

Soviet military power is a point of national pride and an important tool of the current Soviet leadership. Military strength provides the major justification for Soviet claims to superpower status, and it is an area in which the USSR has made major gains in an effort to achieve strategic superiority. These factors help to explain the traditional Soviet willingness to support a large defense establishment. The accession of Yuri Andropov to the position of General Secretary of the Communist Party of the Soviet Union (CPSU), following the death of Leonid Brezhnev in November 19[illegible]2, has not changed the nation's strategic objectives. However, if improvements in the economic structure do not occur, the Soviet defense establishment is unlikely to be able to sustain high rates of growth for very long without undermining its own economic base. The degree of economic stagnation; the perceived need to rescue the economy in order to support the defense effort in the future; and the extent to which the leadership is willing to decentralize economic management, at least at the lower levels to improve economic efficiency are factors that will determine the amount of structural and systemic change Soviet leaders are willing to entertain. Although it is much too early to predict what changes will occur over the next several years, the new General Secretary appears to have created a new environment--one in which the leadership is more willing to openly acknowledge the nature and scope of the economic problems, and appears more willing to accept the economic necessity of limited change as a precondition to improved overall economic performance. However, we do not expect Andropov to undermine the Party's authority or forfeit political control in major economic decisionmaking.

2. SOVIET MILITARY SECTOR

a. Military Industry

All evidence continues to point to the fact that the military retains top priority with regard to resources. The key sector in the national economy, the machinery industry, which is the source of most military hardware as well as producer and consumer durables, continues to achieve the most rapid growth in the economy. The machinery sector consists of 20 machinery ministries--9 producing primarily for defense purposes and 11 for civilian uses.* Although the defense and civilian machinery ministries overlap somewhat in their production, manufacture of civilian products is a secondary part of the work of the defense sector. The fulfillment of all national weapon acquisitions plans is mandatory. In the event of a crisis, the entire work force of the defense machinery ministries can be directed to meet expanded military requirements. Also, the rate of expansion in the defense machinery ministries follows more from military than from civilian imperatives.

In 1982, the machinery industry grew by 5 percent, and was, in fact, the fastest growing sector of Soviet industry. Further, it can also be surmised from Soviet statistics that the defense machinery sector actually grew faster than the machinery sector as a whole. The defense machinery sector now accounts for 60 percent of total machinery output.

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*As used here, the defense and civilian machinery sectors refer to the Machinebuilding and Metalworking Branch (MBMW) of the USSR industrial sector, hereafter designated as the machinery sector. The nine machinery ministries that produce primarily defense products are referred to in the text as the defense machinery sector; the other 11 are collectively called the civil machinery sector. The Soviet military industry complex is vertically integrated from basic industry to end-product. There are also civilian industrial enterprises that are totally dedicated to supporting military producers.

An additional set of economic indicators provides similar evidence of defense continuing as a top priority. Since 1965, employment in the defense machinery sector has grown consistently at higher rates than has employment in the civilian machinery ministries.

The work force in the defense machinery ministries, the principal producers of the nation's military equipment, expanded 62 percent between 1965 and 1981, while that in the civilian machinery ministries rose only 35 percent. This disparity between the two industrial sectors is yet another indicator of the strong long-term Soviet commitment to defense.

Using the defense machinery ministries as a proxy for the Soviet defense industrial sector, employment in the sector grew from 5.5 million to 8.9 million from 1965 to 1981. More than two-thirds of the growth in the machinery sector work force between 1965 and 1981 is accounted for by the defense sector (figure 1).

A demographic constraint on the expansion of the overall Soviet labor force has slowed the growth in defense machinery employment in recent years; however, the slowdown has been significantly greater in the civilian machinery sector. The defense sector now employs about 60 percent of the Soviet machinery workers, and it is absorbing almost all of the current additions to the machinery industry labor force.

Labor productivity is also growing more rapidly in the defense machinery sector than in the civilian sector. This disparity in growth rates suggests that productivity-improving investments, increases in specialized labor, and improvements in technology have been concentrated in the defense sector as well.

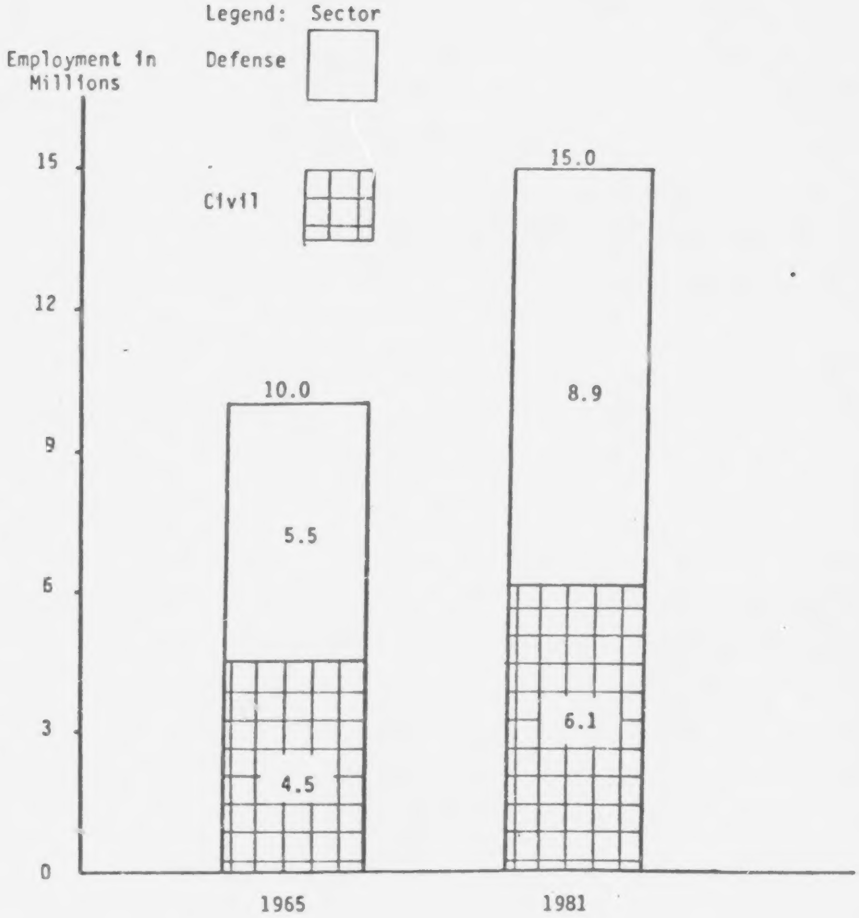

Figure 1. USSR: Employment in Defense and Civilian Ministries of the Machinery Sector

While the growth rate of defense machinery employment is now less than in past years, it is still expanding at roughly 1.5-2 percent per year in contrast to growth in the civilian sector of less than 1 percent. Given the sharply reduced rate in labor growth projected for the 1980s, planners will have to allocate much of the additionally available machinery manpower to defense if the defense sector is to continue to grow.

Defense machinery output can be expected to continue to expand at about 4 percent per year, given the modest assumptions that defense employment will increase at least 1 percent per year and that output per worker will increase on the average by about 3 percent per year.

The implications for the Soviet economy of a growing proportion of the nation's labor resources going to the defense sector are rather serious. With less than 1-percent growth in the labor force projected for the 1980s, continued increases in defense employment could preclude any increase in the civilian machinery labor force. Growth in civilian machinebuilding output would then depend solely on increasing productivity. As a result, the potential growth of the general economy, which relies on machinery, will be lessened.

Such a commitment to defense is especially remarkable in the face of slow economic growth, more bottlenecks in key economic sectors, and difficulties in maintaining living standards. Instead, defense's share of national resources appears to be increasing at a time when machinery resources are needed to bolster investment and output of civilian consumer goods.

Other indicators of Soviet intentions also show that a continued upward trend in military spending is likely. The high priority Soviet leaders place on military power (even as economic growth has slowed) has resulted in continued increases in expansion of military production facilities. There has been no significant reduction, to date, in the rate of expansion of such facilities. Investment in defense industries continues to be large--accounting for about half of total industrial investment--and has maintained this share for more than a decade.

Finally, data from the Eleventh Five Year Plan, 1981-85, indicate that the current stress on defense machinery is likely to continue. The value of output of the defense machinery ministries is to increase by roughly 43 percent during the plan period, compared to 35 percent for the civil machinery ministries (table 1) and 26 percent for industry as a whole. By 1985, based on these plan data, the defense machinery sector will increase its share of total machinery output to 62 percent (figure 2).

The Soviet defense industry has grown steadily and consistently over the past 20-25 years. Their military industrial base is by far the world's largest in number of facilities and physical size, and it produces more individual military systems in greater quantities than any other nation. Physical growth and the commitment of large quantities of financial and human resources are its most dynamic aspect.

Production plants appear to be continually active, suggesting that as old weapon programs are phased out, new ones are begun, leaving little downtime or long periods of layoffs and inactivity. The cyclical process, the continuing facility growth, and the high rates of production keep the arms industry in a high state of readiness to meet any contingency.

There are approximately 130 major final assembly plants involved in producing Soviet weapons as end products. In addition, over 3,500 identified individual installations provide support to these final assembly plants.

Table 1

Machinery Output
(1980-85)

Ministries	**1980-1985 Growth (percent changes)**
Automotive Industry	25
Electrical Equipment Industry*	(40)
Tractor and Agricultural Machinebuilding	50
Instrument building, Automation Equipment, and Control Systems	30
Heavy Transport Machinebuilding	31
Machine Tool and Toolbuilding Industry	40
Chemical and Petroleum Machinebuilding*	(40)
Machinebuilding for Light and Food Industry and Household Appliances	26.9
Costruction, Road, and Municipal Machinebuilding	30
Machinebuilding for Animal Husbandry and Fodder Production	43.5
Power Machinebuilding*	(40)
Total Civil Ministries	34.8
Total Defense Ministries	43.4
Total Machinery Ministries	40

---

*Due to lack of data, these ministries' shares of total machinery output in 1985 is assumed to be the same as for 1981. This probably results in an underestimate of the defense ministries' growth rate and share of output because all three of these ministries have grown more slowly than total machinery in recent years.

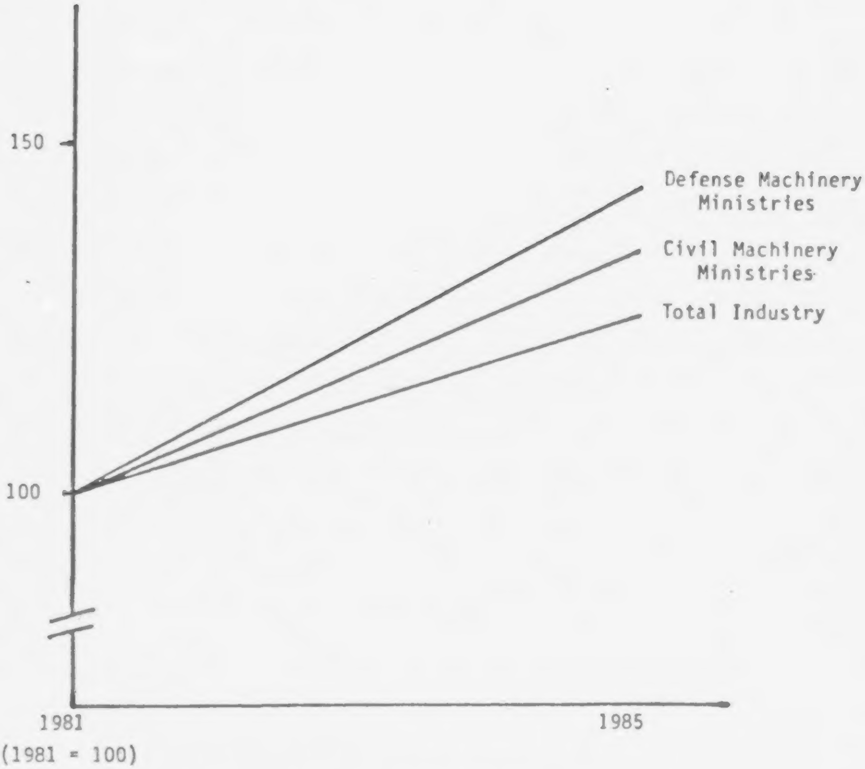

Figure 2. Planned Increases in Output, in Percent, for the Eleventh Five Year Plan (1981-85)

The growth in total floorspace has averaged about 3 percent per year in the defense industry in the past several years. Such physical plant expansion is generally indicative of plans to produce either greater quantities of weaponry or weapon systems of such increased sophistication that additional floorspace is required to maintain capacity. The enlarged production capacity also provides the Soviets the option to accelerate defense production quickly.

b. Military Production

In the last five years, production has increased for some types of weapon systems, in some cases substantially. This is particularly the case for antitank guided missiles (ATGMs), with annual production up over 78 percent, and artillery-type rocket launchers up over 27 percent. Table 2 summarizes these increases over the 1978-82 period.

Table 2

Soviet Military Production - Increases
(1978-82)

Equipment Type	**1978**	**1979**	**1980**	**1981**	**1982**
Infantry Combat Vehicles	2,800	2,600	3,200	3,200	3,300
Towed Artillery	1,400	1,500	1,400	1,600	1,700
SRBMs	250	300	300	300	300
Antiship Cruise Missiles	900	900	1,000	1,000	1,000
Antitank Guided Missiles	35,000	40,000	45,000	60,000	62,500
Artillery-type Rocket Launchers	550	600	700	700	700

For several other types of equipment, production over this 5-year period has remained stable, or shows some minor year-to-year fluctuations. It should be noted that in many categories, production levels are quite high (table 3).

Table 3

Soviet Military Production - Level or Minor Fluctuations
(1978-82)

Equipment Type	**1978**	**1979**	**1980**	**1981**	**1982**
Minor Surface Combatants	50	55	65	45	55
Naval Support Ships	5	7	8	5	4
Long-range Bombers	30	30	30	30	30
ASW Aircraft	10	10	10	10	10
Combat-Capable Trainers	50	25	25	25	25
Helicopters	650	750	750	750	750
SRBMs	250	300	300	300	300
SAMs	53,000	53,000	53,000	53,000	53,000
Ballistic Missile Submarines	2	2	2	2	1

Finally, some weapon systems have declined in production (table 4). Several factors contribute to these production declines, although not all necessarily are applicable to each instance. One factor is simply the cyclical nature of Soviet weapons production. As older weapon systems are phased out of production, follow-on, or replacement, systems will not reach full production immediately but will be phased in over a multiyear period. The newest Soviet systems are substantially more complex and contain some of the most advanced technology available, thus requiring more time to produce. More significant, perhaps, in accounting for declines in production, is the fact that the new weapon systems are more capable than older ones, and consequently the Soviets are not replacing the latter on a straight one-for-one basis.

Table 4

Soviet Military Production - Declines
(1978-82)

Equipment Type	**1978**	**1979**	**1980**	**1981**	**1982**
Tanks	3,000	3,500	3,100	2,000	2,500
APCs	1,600	1,900	1,900	1,000	500
Armored Recon Vehicles	1,100	1,200	1,200	1,000	700
Self-propelled Artillery	1,000	800	600	700	700
Major Surface Combatants	11	11	11	9	8
Attack Submarines	11	10	11	9	7
Fighter/Fighter-Bombers	1,250	1,300	1,300	1,350	1,100
Transports	400	400	350	350	350
ICBMs	225	225	250	200	175
SLBMs	250	200	200	175	175
Military Ground-based Radars	1,000	1,000	900	900	800

The Soviets have systematically implemented their technological advances--taking advantage of emerging technologies--to improve their tactical and strategic forces. The following are samples of new weapons development milestones and achievements since 1970, which illustrate the fruits of their massive research and development efforts.

- **Fighter Aircraft**: Six new series of advanced fighter aircraft have become operational. These include the new close air support fighter-bomber Su-25/FROGFOOT, and the new MiG-25 variant FOXHOUND A lookdown/shootdown interceptor.

- **Bomber Aircraft**: Two new bombers, the highly versatile BACKFIRE and the FENCER A, which has capabilities as both a fighter-bomber and a mid-range bomber, have reached operational status. The new BLACKJACK strategic bomber is now undergoing test flights.
- **Transport Aircraft**: Some 10 new types of transport aircraft, including the widebody Il-86/CAMBER and the Il-76/CANDID, have become operational. A new widebody transport is in prototype production. An AWAC version of the CANDID is likely to reach operational status in the very near future.
- **Helicopters**: The USSR has produced approximately two new series of helicopters every 5 years. This includes the extremely capable Mi-24/HIND attack helicopter and the Mi-26/HALO-A heavy-lift helicopter. The HALO-A, which became operational in 1982, is about twice the size of the largest US helicopter and more than doubles the Soviet Mi-6/HOOK's lifting capacity.
- **Ballistic Missiles**: The USSR has deployed three new intercontinental ballistic missiles (ICBMs), one new long-range INF missile, two new short range ballistic missiles (SRBMs), and four new submarine-launched ballistic missiles (SLBMS)--a total of 10 new ballistic missile systems. In addition, there have been 13 ICBM modifications and 5 SLBM modifications. Two new ICBMs are now being test-flown, and testing of others is expected to begin within the next year.
- **Cruise Missiles**: Soviet cruise missile development efforts have averaged about four new systems every 5 years over the past decade. Technological advances have permitted the progressive

development of missiles with longer ranges, increased reliability, and increased accuracy.

- **Air-to-Air and Air-to-Surface Missiles**: The Soviets have developed and fielded four new air-to-air missiles and eight variants. In addition, they have developed seven new tactical air-to-surface missiles.
- **Surface-to-Air Missiles**: The Soviets have developed and deployed six new surface-to-air missile systems since 1970.
- **Submarines**: The Soviets have developed and deployed a total of 14 new submarine classes since 1970. The new classes include the full range of nuclear-powered SSBNs, SSGNs, SSNs, and diesel attack submarines.
- **Major Surface Combatants**: Since 1970, the Soviets have developed and deployed at least 10 major classes of surface combatants, including the nuclear-powered KIROV Class cruiser, the KRASINA Class cruiser, the KIEV Class guided missile aircraft carrier and the UDALOY Class and SOVREMENNY Class destroyers.
- **Other Surface Combatants**: Additionally, the Soviets have developed a steady stream of patrol, mine warfare, and amphibious assault classes of combatants--an average of two new classes each year. The IVAN ROGOV Class amphibious assault ship is capable of carrying an entire naval infantry battalion and supporting vehicles, including air-cushion vehicles.
- **Tanks**: For nearly two decades, the Soviets have been developing an average of one new tank every 5 years. During the 1970s, they developed and fielded first the T-64A and then the T-72

with their 125-mm smoothbore gun, automatic loaders, and optical fire-control systems. A laser rangefinder is in use on some of these tanks. The Soviet Union's newest tank, the T-80, is now being fielded.

- **Other Amored Vehicles**: Since 1970, the Soviets have produced an impressive series of armored combat vehicles--an average of one new system every 2 years.
- **Field Artillery**: Since 1970, the Soviets have developed and deployed nine new artillery weapons systems--at least five of which are self-propelled. The new gun systems range in caliber from an 85-mm antitank gun to a 240-mm mortar. Several of the new systems are able to fire nuclear-warhead ammunition.

c. Military Exports and Assistance

Since 1980, the USSR has been the world's leading arms exporter. In 1980, for example, the USSR signed military agreements valued at $14.7 billion, while US agreements totaled $10.7 billion. During 1978-82, over $38 billion worth of Soviet military equipment was delivered. Near East and South Asian countries were the main recipients, with 75 percent of the total (table 5). The rapid increase in arms transfers during this period can be largely attributed to the sale of more sophisticated and higher priced equipment such as MiG-23 and MiG-25 jet fighters, Il-76 transports, Mi-24 combat helicopters, surface-to-air missile systems, and T-62 and T-72 medium tanks.

Table 5

Soviet Military Deliveries by Area, 1978-82
(millions of US dollars)

East Asia and Pacific	3,200
Latin America	2,600
Near East and South Asia	28,700
Africa	4,000
Third World Total	38,500

As shown in table 6, the USSR delivered a variety of equipment during the 1978-82 timeframe, including: over 22,000 tanks, APCs, armored cars, and artillery pieces; over 50 guided missile boats; nearly 2,400 combat aircraft; and at least 6,300 surface-to-air missiles. Libya, Iraq, and Syria were the main recipients.

Table 6

Major Soviet Items of Equipment Delivered, 1978-82

Ground	
Tanks and SP Guns	6,530
APCs and Armored Cars	8,070
Artillery Pieces	7,800
Naval	
Major Surface Combatants	32
Minor Surface Combatants	127
Submarines	7
Guided Missile Boats	53
Air	
Supersonic Combat Aircraft	2,150
Subsonic Combat Aircraft	216
Helicopters	1,030
Other Aircraft	340
Missile	
Surface-to-Air	6,530

Based on military assistance agreements for 1982, continuing high levels of deliveries can be expected in the future.

These advanced weapons have required more extensive training, as reflected in the number of military trainees in the USSR (table 7).

Table 7

Foreign Military Trainees in the USSR

	1978	1979	1980	1981	1982
East Asia and Pacific	N/A	N/A	N/A	N/A	N/A
Latin America	2,000	2,050	2,000	2,010	2,000
Near East and South Asia	2,000	2,260	6,600	5,950	5,550
Africa	2,235	2,680	2,310	1,770	1,290
Third World Total	6,235	6,990	10,910	9,730	8,840

Also, because these weapons have required more maintenance, larger numbers of Soviet military advisers and technicians are now in developing countries. The number has grown from over 12,000 in 1978 to more than 20,100 by the end of 1982. As is true for exports, the Near East and South Asia region has the largest number (table 8).

Table 8

Soviet Military Advisers and Technicians Abroad
(minimum estimate)

	1978	1979	1980	1981	1982
East Asia and Pacific	800	1,500	3,000	3,000	3,000
Latin America	2,100	2,100	2,090	2,500	2,630
Near East and South Asia	6,830	11,110	12,100	11,640	11,030
Africa	2,560	2,940	3,270	3,350	3,470
Third World Total	12,290	17,650	20,460	20,490	20,130

The Soviet arms transfer program has been a success and is the major military means for projecting power and influence in the Third World. Arms exports have provided the Soviets with an entree into developing countries, and the USSR has also profited economically from its arms exports, earning much needed hard currency. In 1981, the USSR earned approximately $5 billion in hard-currency payments from arms sales. Soviet financing terms, although less preferential than in the past, are still generally more lenient than those of the West, thereby increasing the attractiveness of the Soviet Union as an arms supplier. The USSR continues to lead in the delivery of major items of equipment to the developing countries. The Soviet Union maintains an edge over other arms exporters in the speed with which supply and delivery decisions can be made and carried out. Although the Soviets are generally tough bargainers, they at times make major sales concessions when the political situation warrants such actions, and have earned a reputation for following up sales with prompt deliveries of large quantities of equipment.

d. **Military Spending**

The cost of supplying the material requirements to the Soviet military and of maintaining its forces is enormous. Although the Soviet Union includes a figure for expenditures on defense in the state budget published each year, this datum is not an accurate indicator of the magnitude of its defense activities. The specific items covered by the "Defense" appropriation are not revealed by the Soviets, and no breakdown of expenditures by military services or resources has been given in recent years. It is known that a detailed "estimate" (smeta) of expenditures on items for military use is compiled each year. The Soviets, however, have not made this "estimate" public, but they have indicated that it is not defined in the same manner as the published "Defense" budget.

The level and trend of the published "Defense" budget in the past two decades have not matched the observed changes in Soviet military manpower, operations, and weapons procurement. Rather than leveling off or declining in the 1970s and 1980s as the "Defense" budget indicates, Soviet military activities have actually expanded fairly steadily year to year.

The unreliability of published Soviet data on military spending makes it necessary to estimate the level and trend of their military effort using other approaches. Both the Soviet ruble and the US dollar are used as common denominators.

(1) **Ruble Expenditures**

At a time when the Soviet Union is undergoing some economic difficulties, the issue of the future defense commitment becomes very important. Since the early 1960s, the Soviet leadership has consistently given defense the top priority when allocating available resources. In recent years, the defense burden has been increasing steadily as economic growth slowed. It is increasingly more difficult to sustain the growth of military programs. Thus, it is important for Western analysts to duplicate as closely as possible the economic data with which the Soviet decisionmakers make choices and tradeoffs.

The Intelligence Community has generally used direct costing in measuring Soviet military expenditures. Through this method, defense spending is estimated by a detailed identification and direct costing of the activities and components--procurement, construction, O&M, and R&D--that make up the Soviet defense program each year. Constant 1970 rubles are used in this approach to measure real changes in defense activities and to remove the effects of changing costs and prices.

Unfortunately, lack of data prevents the Intelligence Community from moving the price base forward. Therefore, other less detailed methodologies must be used to estimate current Soviet military spending levels. Current ruble defense spending estimates are important because it is likely that Soviet leaders use cost estimates and budgetary data reflecting current prices in making key resource allocation decisions. Constant ruble estimates are of little use in replicating the economic environment in which the Soviets leaders operate.

DIA's estimate of Soviet defense spending in current prices is based on the hypothesis that defense has absorbed a constant share of the state budget since 1970. Based on this assumption and other evidence, Soviet military spending in current rubles rose from about 50 billion in 1970 to roughly 100 billion in 1981 or at a nominal rate of 6 to 7 percent annually. Current price GNP was growing at about 5 percent annually.

This resulted in the economic burden of defense rising from 12 to 14 percent in 1970 to 14 to 16 percent in 1981, due to the more rapid growth in defense spending than GNP. These defense spending levels are based on the Soviet concept of defense, which is probably broader than the US concept and may include such activities as the civilian space program, military construction and railroad troops, and the internal security forces of the KGB and MVD.

All available evidence and various residual methodologies using Soviet economic statistics were examined to verify or contradict the military spending trends. All of these various approaches are consistent with a Soviet defense spending level of roughly 100 billion rubles in 1981 and average nominal defense spending increases of 6 to 7 percent throughout the 1970s.

Table 9 shows the growth over the 1970s of the major components of FNE, or Financing the National Economy. (The 1980 figures are plan data. Actual spending for these categories is not available. Actual growth rates would be somewhat higher, since actual total spending for FNE was 12 billion rubles higher than the planned 1980 level.)

Table 9

Financing the National Economy (FNE)
(billion rubles)

	1970	1980 Plan	Percentage Increase	Average Annual Growth Rate
Total FNE	74.6	149.3	100	7 (actual 8)
Industry and Construction	30.5	68.3	124	8
Agriculture	12.4	24.1	94	7
Transportation and Communication	3.1	7.7	148	10
Trade	6.3	3.1	-49	-4
Municipal Services	6.5	9.2	42	4
Residual	15.8	36.9	134	9

Once again, except for the very small transportation and communication sector, the two components that exhibited the greatest growth were industry and construction and the FNE residual--the two sectors within FNE where most military spending would be located.

Soviet leaders have acknowledged the negative effects of high military spending on the economy and on the USSR's standard of living but to date have been consistently willing to pay the price. Some also realize that the Soviet military in the long run is only as strong as the rest of the economy (emphasis added):

> The sharpening of the international situation compels the socialist state to increase military production and consumption, easing of tension permits a decrease, a fuller utilization of

> economic might for raising the standard of living of the workers and the development of the national economy. It is impossible to allow, on the one hand, a reduction of military-economic might for in this case the defense capability of the country would be threatened; on the other hand, an excessive increase in military-economic might cannot be allowed because in the final analysis this could slow the development of the very foundation of military power--the economy--and do irreparable harm to defense capability.*

Deputy Premier V.N. Makeyev, who oversees consumer goods production, said in a speech at the All-Union Ideological Conference in April 1981 that consumer production has been held back by the considerable expenditures necessary for defense.**

Certain Soviet economists concerned with the economic commitment to defense have measured defense expenditures as both a share of the state budget and as a share of national income. Recently, for example, Major General N. Tabunov wrote:

> The founders of Marxism-Leninism pointed to the dependence of a state's military might upon economic conditions. The maximum capabilities of an economy which can be employed for strengthening a nation's defense and repelling aggression

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*A.I. Pozharov, The Economic Foundations of the Defense Might of the Socialist State, Moscow, 1981, p. 116.

**V.N. Makeyev, "The 26th CPSU Congress on a Further Rise in the Soviet People's Well-Being," Za Vysokoye Kachestvo I Deystvennost' Ideologicheskoy Raboty, ed. Ye. M. Tyazhel'nikov, Politizdat, 1981. Translated as FOUO 19/82, JPRS L/10587, 15 June 1982, p. 169.

> expresses the military-economic potential. The share of military consumption in national income usually serves as the criterion for assessing this.*

National income is the Soviet measure of the economic output of the Soviet Union. It is roughly equivalent to the Western measure of economic output--gross national product (GNP) minus services (such as education and health) and depreciation. Table 10 compares the growth of national income and defense spending over the 1970s.

Table 10

Soviet National Income

	1970	**1981**	**Percentage Increase**	**Average Annual Growth Rate**
	(billion current rubles)			
National Income (Consumption & Accumulation)	285.5	474	66	4.7
Military Spending	50	100	100	6.5

The evidence presented shows that Soviet defense spending grew significantly faster than national income over the 1970s. This resulted in an increase of the defense burden from 17-18 percent of national income in 1970 to 20-22 percent in 1980.

The economic burden of defense presented is strictly financial--a ratio of estimated military spending and some measure of economic output. Financial estimates cannot measure the total "true" costs of military spending in a nonmarket economy such as the Soviet Union's, where centralized control distorts economic relationships. No attempt is made here to measure, for example, the economic impact of the high priority that the Soviet Union's command economy allocates to defense which guarantees that the best material and personnel go to the military. Given these unknown costs of quality and performance, the real economic burden of defense is probably higher.

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*(U) N. Tabunov, "National Defense Might: Essence and Structure," Kommunist Vooruzhennykh Sil, No. 7, April 1982.

By Western standards, the Soviet version of national income is a faulty measure of a country's economic output. Thus, to measure the Soviet Union's economic capacity to support the military more accurately, it is necessary to construct an estimate of Soviet GNP. Estimates of Soviet GNP are also useful when comparing defense burdens between countries. Table 11 presents DIA's estimate of Soviet GNP for 1970 and 1981.

Table 11

Soviet Defense Burden - GNP

	1970	**1981**	**Percentage Increase**	**Average Annual Growth Rate**
	(billion current rubles)			
Estimated Soviet GNP	387.5	650	68	4.8
Military Spending	50	100	100	6.5

On 1 January 1982, Soviet industry underwent a major price revision that may have a bearing on the defense burden. Prices for many commodities in the Soviet Union have been relatively fixed since the late 1960s, while costs escalated. This led to lower profits and even losses for many enterprises. The 1982 price revision raised the prices for many industrial commodities (and lowered them for products whose production costs declined) to cover these increased costs and improve economic efficiency. It

is not yet known how the 1982 price revisions affected the price of military hardware. But the defense burden when calculated in the new 1982 prices will probably rise because of the rapidly increasing costs of producing the newest weapons.

Soviet military spending and the defense burden are higher when measured in current rubles--what the Soviets actually spend--than in the Intelligence Community's standard constant 1970 prices. This is probably because costs for the military increased faster than the rest of the economy. In 1981 Soviet defense spending was roughly 100 billion rubles in current prices, and 14-16 percent of Soviet GNP was devoted to the military. Because Soviet economic growth has slowed, the economic burden of defense is growing. If present trends continue, the Soviets will be allocating 17 to 19 percent of GNP to defense by 1985. Most of the civilian sectors of the economy are in dire need of added resources. Civilian industry, consumers, agriculture, and transportation are all competing with defense for a larger share of the pie. Soviet leaders must be increasingly concerned over the rising share of economic output that defense is taking, but they appear to be accepting the economic burden of increased defense spending because of the political/military advantages that have accrued as a result of increased Soviet military capabilities.

(2) **Dollar Costs**

The estimated dollar value of Soviet defense activities represents what it would cost in the US to hire the manpower, procure the hardware bought by the Soviet military, and operate that force as the Soviets did in a particular year. The activities covered by the estimated dollar costs include those military functions that would be funded in the US by the Department of

Defense, the Department of Energy, and the Coast Guard, but exclude retirement costs. These estimated costs are denominated in constant dollars in order to remove the effects of inflation and reveal the underlying trends in physical quantities and activities. Dollar costs are useful in determining the overall size and trend of Soviet military activities in terms familiar to US policymakers and in making comparisons with US expenditures on similiar activities. The cost of Soviet military activities in 1981 was in excess of $220 billion. US outlays for similar military activities in 1981 totaled less than $180 billion.

It is estimated that since 1970 the total dollar cost of Soviet defense programs has risen in real terms at an average annual rate of about 3 percent, marking continuous growth in the overall level of Soviet military activity (figure 3). Much of this expansion stems from the acquisition of a variety of more costly, sophisticated weapon systems, such as peripheral attack missiles, interceptor aircraft, tanks, tracked vehicles, artillery, and major surface combatants. These weapons are the end products of an extensive research and development effort during the 1970s.

The projected acquisition trends for the new Soviet systems under development drive the estimated dollar cost of the Soviet defense program up at a rate close to the historical norm of about 3 percent per year.

With the incorporation of new and more expensive technologies into the deployed Soviet forces, it is expected that the dollar cost for procurement of the strategic forces, led by bombers and missiles, will increase by about 5 percent per year. The procurement cost for the general purpose forces is expected to increase by about 4 percent per year, with significant increases in the acquisition of aircraft for the tactical air forces.

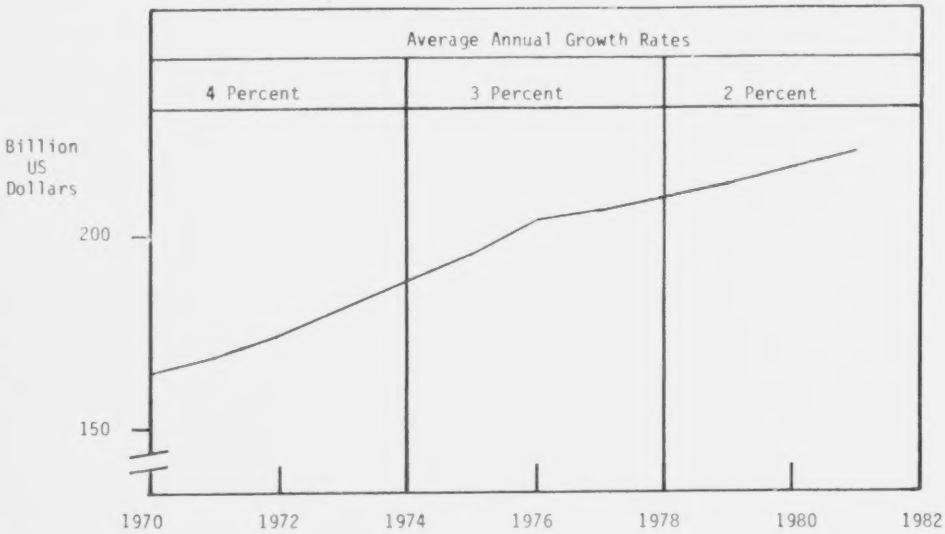

Figure 3. Growth in Soviet Defense Programs, 1970-81 (Estimated 1981 Dollar Costs)

3. SOVIET ECONOMIC TRENDS

a. Systemic Factors Affecting Economic Performance

The Soviet economy has continued expanding, albeit more slowly than in the past (table 12) and more slowly than specified by the Eleventh Five Year Plan targets. Overall economic performance has not met the expectations of the leadership, primarily as a result of several economic factors that began to change markedly during the 1970s. Essentially, high economic growth rates no longer can be achieved by putting more and more resources into the production process.

(1) Capital

The first major factor of change has been the slower growth in capital productivity and capital formation. While investment in machinery, equipment, building, and related infrastructure continued to grow, several negative factors were becoming evident. A large portion of investment remained tied up in unfinished, unproductive construction projects. For example, while total capital investment in 1981 was approximately 138 billion rubles (in comparable prices), the volume of unfinished construction stood at about 108 billion rubles. With respect to investment, Soviet economists themselves point to the need for extensive retooling of old, often obsolete, equipment; the need for increased investment in environmental protection equipment; the poor results from large investments in agriculture in the past; and the failure of the work force to take advantage of new equipment to raise productivity.

The results of these factors are that increments to the capital stock in at least some sectors are falling in real terms; the rising costs of capital are driving Soviet economic growth potential downward from its already low level; and the growth in capital productivity is slowing as indicated by

Table 12

Growth of Major Economic Indicators
(Percentage of annual increase)

	1970-1975*	1976	1977	1978	1979	1980	1981	1982***	Plan 1981-85@
National Income (current prices)	4.62	6.17	5.16	4.17	4.28	4.06	5.10**	2.60	--
Gross National Product	3.80	4.70	3.10	3.40	0.70	1.30	2.20	1.80	4.00
Gross Value of Industrial Output	7.42	4.90	6.00	4.40	3.61	3.49	3.40	2.80	4.70
Gross Value of Agricultural Output	0.80	6.47	4 .00	2.72	-3.12	-2.49	-0.99	4.10	2.50
Capital Investment	6.97	4.52	3.64	6.05	0.69	2.22	3.00	4.50	2.00

Sources: Narodnoye Khozyaystvo 1978, 1980, 1981. Moscow News, January 24, 1982.

*Average annual rate of growth.

**At least 2 percent of this increase is due to price increases announced in September 1981.

***Preliminary.

@Average annual growth as a percentage of 1980.

declining output-capital ratios since 1970 (table 13). Only in the machinery sector, which includes the defense sector, is output per ruble of investment in 1981 at levels near those of 1970.

Table 13

Trends in Output-Capital Ratios in Soviet Industry
(1970 ratio = 100)

	1970	1975	1977	1979	1980	1981
All industry	100	94.7	90.9	85.2	82.4	79.3
Electric Power	100	99.3	98.7	95.5	94.7	92.0
Fuel Industry	100	93.0	87.3	77.8	72.6	68.3
Ferrous Metallurgy	100	89.5	84.0	77.8	73.1	70.1
Chemical and Petrochemical	100	104.4	103.8	92.4	89.0	86.8
Machinebuilding	100	107.5	105.6	103.9	101.2	99.3
Forestry, etc.	100	89.0	82.4	73.1	69.9	68.6
Construction Material	100	92.2	85.3	77.4	74.3	72.3
Light Industry	100	86.2	81.8	76.9	74.8	72.0
Food Produce Industry	100	90.9	83.8	78.5	74.5	72.2
Flour Milling	100	73.6	68.6	61.4	57.3	53.6

Source: Calculated from data in *Narodnoye Khozyaystvo* 1981 pp. 155, 169. Comparable price output and fixed productive assets are used in the calculation, in accordance with Soviet practices.

(2) **Labor**

The second major factor to change in the 1970s has been the outlook for growth of the labor force. Growth in manpower will decline in all sectors of the economy in the upcoming years due to low birth rates in the USSR. While about 2 million persons joined the labor force each year from 1976 to 1980, this increment will average only 600,000 annually during 1981 to 1985, and by 1985, the annual increment will have fallen to 400,000 (table 14).

Table 14

Increments to Soviet Working-Age Population
(million persons, annual average)

1971-1975	12.7
1976-1980	11.1
1981-1985*	3.2
1986-1990*	2.5

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*Estimated on the basis of demographic trend projections.

More important than an absolute lack of manpower in its impact on growth is the extremely low level of labor productivity. By Western standards, there is serious underemployment in all sectors of the economy. Overstated Soviet estimates put labor productivity in industry at 56 percent of the US level, while agriculture is only 20 to 25 percent. This is due, in part, to the fact that over half of all workers in Soviet industry, construction, and agriculture work manually. The defense sector is also beset with this problem, where labor is used in place of equipment in the event of mechanical breakdowns, which are frequent. Increasing the amount of capital input per worker, however, has not and will not automatically turn the situation around. Man-hours lost to harvest support, low morale, shopping during work hours, participation in activities of the "second economy," and alcoholism would also have to be reduced substantially to overcome the negative manpower trends.

These factors have resulted in a steady drop in the growth of total labor productivity in the economy as a whole. For the industrial labor force, there has also been a concomitant decrease in growth, from a 4.5-percent annual average rate in 1971-75, to a 1.9-percent annual average in 1976-80. The yearly rate had actually dropped below 1 percent by 1979 (see table 15).

Table 15

Growth in Labor Productivity
(average annual percentage)

	1971-75	**1976-80**	**1981-85 (plan)**
TOTAL	2.1	1.0	3.4
Industry	4.5	1.9	4.5
Defense Industry	1.1	1.1	-
Construction	2.4	1.2	2.5
Transportation	3.5	1.3	2.1

The new leadership, faced with disappointing economic performance, has stressed the need for increased worker productivity and stricter enforcement of discipline among workers and managers alike. In an unusual move, Andropov, shortly after taking office, engaged in direct dialog with workers. During a highly publicized visit to a Moscow machine tool factory, he stressed the need for increased worker discipline, implying that much more than empty slogans and exhortations are needed to solve the country's economic problems.

(3) **Resources**

(U) The third major factor that became evident during the 1970s was the increasing difficulty of obtaining raw materials due to harder accessibility and greater costs of recovery. As rich deposits of ores and energy sources in the western portions of the Soviet Union became depleted, development of Siberian resources became necessary. Although this area of the country is still endowed with abundant natural resources, these eastern areas suffer from harsh climate, underdeveloped or nonexistent infrastructure (such as roads, housing, schools, retail trade networks), and a very small pool of available labor.

(4) Transportation

The railroads, which provide the major year-round mode of transport in the USSR, appear to have reached capacity. Shortages of railcars, shortcomings in the maintenance and use of transport facilities, and inadequate distribution of available rolling stock, have caused problems for industrial shippers--both civil and defense. Although total freight turnover for all modes of transport increased 1.2 percent in 1982 over 1981, rail turnover declined 1 percent for the same period, indicating that Soviet railroads carried less freight despite an expanding economy. Rail transport problems became so serious that General Secretary Andropov singled them out for special criticism in a speech to the Central Committee, and in his first of many personnel changes in the economic management area, he dismissed the Minister of Railroads.

Faced with strained capacity in the rail sector, the government imposed restrictions on entire rail systems and on the use of railcars in order to give priority to the movement of certain goods, particularly grains and other foods. These decisions, however, disrupted shipments of raw materials, intermediate goods, and finished products to customers. These disrupted deliveries had a "ripple" effect on the entire economy, causing production delays and shortfalls in almost every sector.

b. Agriculture

The major recent development in agriculture was formal announcement of the National Food Program by the late General Secretary Brezhnev at the Central Committee Plenum on 24 May 1982. The impetus was three consecutive major harvest shortfalls, including some nongrain crops, followed by another poor year in 1982. As shown in table 16, estimates of grain production averaged 190 million tons, which was about 30 million tons a year below expectations for the 5-year period. Soviet failure to publish 1981 and 1982 results is indicative of leadership sensitivity over this situation. Efforts to cushion the impact of domestic shortfalls have included record imports of grains and other food products, as shown in table 17.

Table 16

Soviet Grain Production
(million metric tons)

1978	1979	1980	1981	1982
237	180	189	160	180

Table 17

Soviet Grain Imports
(million metric tons)

1976-1977	1977-1978	1978-1979	1979-1980	1980-1981	1981-1982
10	18	15	30	35	45

Hard-currency outlays for food, only half of which were for grains in the 1980-82 period, have also reached unprecedented levels, as shown in table 18. In fact, over the past 3 years, over $9 billion in hard currency annually has been required to pay for food imports, an amount equal to earnings from oil exports to the West.

Table 18

Soviet Hard Currency Outlays for Agricultural Products
($ billions)

1977	1978	1979	1980	1981	1982 (preliminary)
3.2	3.8	5.5	9.0	12.0	10.0

Other measures taken to stabilize the availability of food include some rationing on a selective basis and special distribution of food at work places in order to improve worker morale and reduce work hours lost to queuing for food. The lack of incentives due to poor food supplies is believed to be an important factor in the below-plan growth of labor productivity, which was to account for 85 to 90 percent of the Eleventh Five Year Plan increases in output.

Leadership concern over disgruntled consumers in general and increasing incidents of labor unrest in particular has been mounting since 1979. Andropov's labor discipline and anticorruption campaign has been partially designed to cope with some of these problems. In the early months of 1983, there was a noticeable improvement in food supplies in several major cities. Also, over the same time period, there was a significant improvement in overall economic performance.

(1) **Agro-Industrial Emphasis**

The Food Program is wide ranging in concept, with special emphasis on industries supporting agriculture, on farm management, and on raising rural living standards. The effort to improve food supplies differs somewhat from past programs by its attempts to reduce the huge losses between field and retail markets (said to be as high as one-fifth of production) and by emphasizing the entire agro-industrial complex involved in the procuring, storing, transporting, and processing of food as well as supporting the civil machinery ministries. Ministries responsible for tractor and agricultural machinery, machinery for animal husbandry and feed production, heavy transport machinery, food machinery, and pulp, paper, and food packaging are expected to make the Food Program a success.

To assist the civil machinery sector in meeting its additional responsibilities, major leadership speeches at special Party plenums and Party congresses pertaining to the Food Program have emphasized the need for support from defense and heavy industry. In this context, Brezhnev, in his October 1980 speech calling for a Food Program, said, "I have in mind scientists and designers working in defense branches.... The Council of Ministers jointly with specialists should be instructed to determine precisely what scientific and design collectives of defense industry could assist civil machine building." Andropov, in his first speech as General Secretary in November 1982, endorsed the Food Program: "The task is not only to increase the production of consumer goods, but also to improve their quality considerably. This applies not only to light and local industries but also to plants in the heavy and defense industries."*

(2) **Financial Aspects**

It is planned that between 33 and 35 percent of the nation's investment during the Eleventh and Twelfth Five Year Plans (FYP) will be allocated to development of the agro-industrial complex under the auspices of the "Food Program."

A total of 233 billion rubles is to be invested in the agro-industrial complex during the Eleventh FYP, about 3.8 percent less than the 242 billion rubles invested during the Tenth FYP (1976-80). Of this investment the amount allocated to supporting industries during the Eleventh FYP will be 43 billion rubles, compared to 71 billion rubles under the Tenth

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*Most, if not all, industrial enterprises subordinate to the defense industrial ministries produce, in addition to military goods, a range of producer and consumer goods as a normal part of their activities.

FYP. These trends may simply reflect the extremely poor productivity resulting from past heavy investment in the agricultural sector, and not a change in emphasis on the importance of the food situation.

In a related move, additional payments of 3.3 billion rubles are to be paid from the state budget for use by unprofitable kolkhozes and sovkhozes. These funds are for rural housing, schools, clinics, roads, and other social projects to improve the low standard of rural living. According to the Minister of Finance, in 1980 fully half of these farms were unprofitable. Consequently, the agricultural subsidy in the state budget has again increased, rising from 30 billion rubles in 1980 to 46 billion rubles in 1983, now more than 10 percent of the total state budget.

A direct result of these developments in agriculture is increased pressure to raise food prices. In February 1983 a major increase in the price of nonstaple foods was implemented. However, the leadership views a major increase in the price of staples such as bread, flour, and potatoes as being politically too sensitive due to the potential for adverse worker reaction.

c. Industry

Industrial output continued to increase in 1982, although the rate of growth has slowed somewhat from the preceding year. Overall, performance was positive, with some sectors showing solid gains, but other sectors criticized for below-plan levels of output. The machinery sector, as in past years, showed the most rapid growth in industry. While the metallurgy sector has been repeatedly rebuked for its poor performance in producing steel, production of many metals and specialty steels, which are key inputs to the military production sector, continues to increase (table 19).

Table 19

Selected Key Indicators of Industrial Production

	1980	1981	1982
Agricultural Machinery			
Tractors (million horsepower)	47.0	47.9	47.9
Grain Harvesting Combines (thousands)	117	106	113.6
Cotton Harvesters (thousands)	9.1	9.6	9.9
Transportation Equipment			
Diesel Locomotives (million horsepower)	3.8	3.8	3.6
Electric Locomotives (million horsepower)	3.4	3.5	3.7
Freight Cars (thousands)	63.0	61.0	58.6
Motor Vehicles (thousands)	2199	2197	2173
Other Machinery			
Excavators (thousands)	42.0	42.3	42.7
Metal-cutting Machine Tools* (million rubles)	1944	2047	2068
Forging and Pressing Equipment* (million rubles)	563	597	612
Turbines (million kilowatts)	20.3	15.6	17.3
Metallurgy			
Steel (million metric tons)*	148	148	147
Aluminum (thousand metric tons)*	2735	2830	2850
Nickel (thousand metric tons)*	247	255	260
Titanium (thousand metric tons)*	60	62	63
Energy			
Oil (million tons)	603	609	613
Natural Gas (billion cubic meters)	435	465.3	501
Coal (million tons)	716	704	718

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*Highly supportive of defense industries.

The most recently available reporting on industry, for the first 4 months of 1983, indicates that the industrial sector increased production by 4.4 percent, as against the 1983 planned increase of 3.2 percent. Further, labor productivity in industry for the January-April period also exceeded plan targets, increasing by 3.6 percent versus the 2.9 percent increase called for in the annual plan. The plan for the 4-month period was fulfilled by all industrial ministries, with the exception of the Ministry of the Coal Industry, which failed to meet its labor productivity targets. These data suggest that some improvements are possibly being made in areas which have posed problems in the economy for the past several years--spot shortages of industrial materials and fuels resulting from transportation bottlenecks, low growth in labor productivity, and low capital productivity.

d. Energy

One of the brightest spots in the economy is the performance of the energy sector (table 20).

Table 20

Soviet Fuels Production

	1970	**1975**	**1980**	**1981**	**1982**	**Plan 1983**	**Plan 1985**	**Plan 1990**
Oil (million tons)	353	491	603	609	613	619	630	630
Natural Gas (billion m^3)	192	289.3	435	465.3	501	529	630	780
Coal (million tons)	577.4	645	716	704	718	723	765	775
Electric Power (billion kilowatt hours)	741	1039	1294	1326	1360	1405	1555	1900

Natural gas production continues to grow at a rate of 7-8 percent annually, and the USSR should, within a few years, become the world's leading producer of natural gas. Production in 1982, at 501 billion cubic meters (m^3), was almost 8 percent over that of 1981. Production currently is running significantly above plan and should exceed the 1983 goal of 529 billion m^3 by 7-8 percent. Proved Soviet natural gas reserves are the largest in the world, equating to over 200 billion barrels of oil. Production is constrained only by the limits of the pipeline system, which is being ever expanded.

Natural gas production will continue to grow through 1990 and beyond. The production goal for 1985, projected at 630 billion m^3, should easily be met and could be surpassed if production continues at its current rate. The share of natural gas in Soviet fuels consumption is also expected to grow markedly during this decade.

The Urengoy Export Pipeline ("Yamburg Pipeline"), scheduled to begin delivering Siberian natural gas to Western Europe by 1984, is currently under construction, with over 80 percent of the pipe already in place. Initial testing of the pipeline should take place this fall, but full operation, with all compressor stations operational, would require 2 to 3 years. The "Export Pipeline" is but one of six large-diameter natural gas pipelines slated for construction during this five year plan period. All of these lines originate at the supergiant Urengoy gasfield in West Siberia which, by 1985, will provide over half of the country's gas production. Three of the six lines have already been completed, and construction continues on the "Export Pipeline" and the remaining two lines.

Soviet petroleum production continues to grow, though at a moderate rate of less than 1 percent per year. Production for 1982 reached 613 million tons, slightly below plan but 0.6 percent over that of 1981. Plans for 1983 call for growth of around 1 percent. Output should reach or only narrowly miss the goal of 619 million tons. Production for the first quarter of 1983 was reported to be 2 percent higher than for the same period in 1982.

The USSR is expected to meet its 1985 oil production target of 630 million tons. This represents an annual production growth of less than 1 percent and should be reached. DIA expects production to level off at around 630 million tons per year between 1985 and 1990, with a probable resurgence of growth after the end of the 1980s.

After peaking at 724 million tons in 1978, Soviet coal production fell nearly 3 percent by 1981 to 704 million tons. Production began to rise again in 1982, however, reaching 718 million tons, 2 percent more than in 1981. The modest 1983 goal of 723 million tons can be attained, but the 1985 goal of 765 million tons is probably unreachable; a more realistic figure for 1985 would be 735-740 million tons. Constraints on Soviet coal production are due to shortcomings in the industry's infrastructure and management, not to insufficient coal reserves.

Production of electric power has been growing at a rate of about 3 percent over the last several years. In 1982 it approached 1,360 billion kWh and is planned to reach 1,405 billion kWh in 1983. Production for 1983 will probably come very close to planned targets, although some problems in installing nuclear capacity may be expected.

Soviet plans call for production of electric power in 1985 of 1,555 billion kWh, but this goal is probably not attainable at the present rate of growth. Output will probably be in the 1,480-1,520 billion kWh range, or about 95 to 97 percent of plan fulfillment, which is as close to plan as they have been able to achieve in the past. Production shortfalls will likely result from insufficient installation of nuclear capacity.

As shown in table 21, the Soviet Union possesses vast reserves of energy, including the world's largest reserves of coal and natural gas. Based on the magnitude of these reserves, the Soviets have the potential for continuing, long-term growth.

Table 21

Soviet Energy Reserves

Coal	5.7 trillion metric tons
Natural Gas	36 trillion cubic meters
Oil	80-85 billion barrels

e. External Economic Situation

The Soviet hard-currency payments position improved somewhat in 1982 over the previous year. By year end, the net estimated Soviet hard-currency debt to the West decreased by almost $2.5 billion to approximately $10 billion. The Soviets have continued to be successful in maintaining a debt service ratio of under 20 percent, reflecting their basically strong international financial position.

The Soviet hard-currency trade balance also improved in 1982 (table 22). They have also maintained a conservative position in their external economic relations, reflected in their cautious imports of much-needed Western goods and constantly expanded exports of energy products and other hard-currency earners.

Table 22

USSR: Hard Currency Trade
(million US dollars)

		1981			1982	
	X*	M*	Balance	X*	M*	Balance
TOTAL	**23,800**	**27,800**	**-4,000**	**26,200**	**27,400**	**-1,200**
Argentina	43	3,297	-3,254	38	1,700	-1,600
Australia	8	387	- 379	10	371	- 361
Brazil	23	742	- 719	252	601	- 349
Canada	36	991	- 955	15	1,006	- 991
France	1,816	1,198	618	1,626	925	701
Italy	1,787	721	1,066	2,059	892	1,167
Japan	558	1,592	-1,034	553	2,135	-1,582
UK	465	618	- 153	593	549	- 44
US	132	1,196	-1,064	113	1,512	-1,399
FRG	2,615	1,945	670	2,967	2,126	841
Others	16,315	15,113	1,202	17,974	15,583	2,391

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*X = exports, M = imports.

Despite a substantial downturn in international petroleum prices, the Soviets were able to increase hard-currency earnings from crude and products to over $14 billion, compared with $12 bilion during the previous year. Smaller crude deliveries to other Communist countries, plus record Soviet imports of Libyan crude available for re-export have helped energy sales to provide nearly half of the USSR's export revenue in 1982, with petroleum products representing almost 40 percent of the total.

In spite of both record oil production and unprecedented hard-currency earnings from this commodity, the Soviets have shown concern about the adverse consequences that a continued drop in oil prices may have on their hard-currency earning prospects. Earnings from natural gas, upon which the Soviets are counting heavily for future export earnings, were not substantially higher than in 1981 due to the contractual linkage between oil and gas prices and decreased demand. Other nonenergy exports (such as gold and some metals) also experienced depressed price levels, hindering expanded earnings. While hard currency earnings from arms sales continued to be at the $5 billion level, prospects for significant increases from this source are not great due to financial problems in most recipient countries.

In 1982 imports of agricultural products, which have been the cause of major hard currency expenditures since the late 1970s, fell in value by about $2 billion, causing a reduced need for short-term credits from the West. This reduction helped to offset increased official credits for machinery and equipment, including that needed for the export gas pipeline. Machinery purchases from the West, which had fallen off between 1977 and 1981, resulted in record outlays of approximately $6.8 billion dollars. These additional expenditures were partially offset by the reduced agricultural imports and energy sales.

The overall improvement in the Soviet Union's hard-currency position has not occurred without substantial cost to Moscow. The limits in grain imports have been felt in cutbacks in the availability of meat and dairy products for the average consumer. The increase in hard-currency petroleum exports have forced reductions in exports to East European clients. These and other austerity measures have had major repercussions on the already strained economies of Eastern Europe.

The Soviet Union has incurred huge costs supporting the East European economies. Primarily due to preferential prices for Soviet raw materials, especially oil, the trend in Soviet economic assistance to Eastern Europe has risen dramatically over the last decade. Totaling less than $500 million in 1973, the level reached about $20 billion in 1981 and roughly $15 billion in 1982. While Soviet assistance fell in 1982, the economic cost of subsidizing the East European economies is still very sizable.

The Soviet Union incurs two major types of economic costs in support of Eastern Europe: implicit subsidies and trade surpluses.

Implicit subsidies are the result of the intra-CEMA pricing formula, which bases raw material prices on a 5-year moving average of world market prices. Due to the price formation system, the East Europeans have been able to purchase through barter arrangements Soviet oil and other primary commodities at prices below world market levels. In 1981, oil exports alone represented about a $10 billion Soviet subsidy to Eastern Europe. That is, the East Europeans imported oil from the USSR in 1981 at a price equal to the average of world market prices in the years 1976-80; or, at roughly 50 percent of prevailing world prices. Total export subsidies to Eastern Europe are estimated at about $16.6 billion in 1981 and over $12 billion in 1982.

The second major form of economic assistance falls under the rubric of trade surpluses. Although bilateral trade within CEMA is supposed to be in balance, Moscow has run trade surpluses with Eastern Europe in every year since the mid-1970s. These surpluses, in effect credits since trade is conducted on a clearing account basis, have grown from about $100 million in 1974 to over $4 billion in 1981 and about $2.7 billion in 1982.

The economic crisis in Poland has been yet another drain on the Soviet Union, although less so in 1982. Soviet assistance to Poland since 1980 has totaled roughly $7 billion: about $5 billion in trade credits and close to $2 billion in hard-currency aid (table 23).

Table 23

Soviet Trade Credits to Poland

	Rubles (millions)	**Dollar Equivalency (millions)**
1979	120	184
1980	810	1,247
1981	1,710	2,377
1982	716	988
1983	1,000 (planned)	1,380

Although Soviet economic assistance to Eastern Europe (table 24) is still very extensive, it nevertheless did decrease by about $5 billion in 1982. The primary reason for this decline was a marked increase in the cost of Soviet oil and other raw materials to Eastern Europe (Romania excluded), caused by a further adjustment of the intra-CEMA pricing mechanism. Thus, while the East Europeans are still given preferential rates (excluding Romania), the degree of Soviet subsidization of oil and other resource deliveries is decreasing as intra-CEMA prices reflect the steep rise of world oil prices that occurred in 1979. Another major factor that contributed to a fall in economic assistance was the substantial reduction of Soviet trade surpluses vis-a-vis Eastern Europe. From a high of over $4 billion in 1981, Soviet credits to Eastern Europe decreased by about 40 percent in 1982, largely in response to tougher Soviet demands for more balanced trade. A slight drop in Soviet oil exports to Eastern Europe in 1982 also caused a decline in Soviet economic support.

Table 24

Soviet Economic Assistance to Eastern Europe*
(millions of dollars)

Year	Total Assistance	Total Implicit Subsidies	Oil Price Subsidy	Trade Surpluses
1978	3,875	3,725	1,600	150
1979	7,500	6,600	3,800	900
1980	18,100	16,500	10,200	1,600
1981	20,400	16,000	9,800	4,400
1982	15,250	12,500	6,300	2,750

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*DIA/CIA estimates.

In addition, support to other client states, such as Cuba, Vietnam, and Afghanistan, have caused the Soviet Union to incur direct costs for purchases of foodstuffs for these countries, and indirect costs through subsidized supply of refined petroleum products to these countries, thus foregoing potential hard-currency earnings. It has been estimated that in 1982 the cost of aid to Cuba and Vietnam alone was over $6 billion. In the case of Afghanistan, the Soviets are forced to support both their own military presence and the war-ravaged Afghan economy. The burden of these economic responsibilities has been reflected in Soviet recalcitrance to increase economic support to other leftist-oriented revolutionary regimes. In 1982, as in the past, Soviet aid activities in the Third World, except in politically critical areas, have been on a much smaller scale than those of the West. Commercial trade was concentrated in those countries that were able to provide needed agricultural commodities, particularly Brazil and Argentina.

4. SOVIET ECONOMIC STRATEGY FOR GROWTH

The Soviet Union is facing some difficult choices among competing policy options. The choice of a path will be affected by a combination of challenges and difficulties at home and abroad, unprecedented since World War II, that coincides with leadership maneuvering in the post-Brezhnev stage.

In response to declining economic growth, the Soviets have been asserting their intention over the last 10 years to follow a development strategy of intensive growth, but have to date been unwilling to recognize or accommodate the changes in the economic structure which must occur to implement such a strategy.* The new leadership under Andropov may be in a better position to effect change in the mid-term, possibly as early as the Twelfth Five-Year Plan, 1986-90. The question remains as to why the Soviet leadership might at this time or in the near future decide to finally take the steps necessary to implement this development strategy, rather than to continue to let the economy stagnate.

There are several reasons which may make such a policy not only more desirable but economically and militarily necessary. The first is simply a matter of national pride. The Soviets have long touted their system as a model for economic productivity and the ideal system to achieve economic abundance. Although they have made considerable strides when compared to their situation in the years following World War II, they are far behind the rest of the world in providing for the economic needs of the people and in efficiently running an economy capable of sustaining continued growth and production. The embarrassment of their economic situation, alone, could provide impetus for the Soviet leadership to take corrective measures, although by itself would not likely induce the fundamental changes required by the new development strategy of intensive growth.

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*For the purposes of this paper, a distinction is made between the overall Soviet system and structure, which is the Soviet state and the various subsystems and structures that make up the whole. The economic structure and system, while distinct from the political, are closely related, and a change in the former will often impact to some degree on the latter. The system is defined as the method by which the structure operates; the structure is the manner in which the systemic elements are organized and interrelated. Fundamental change is seen as an alteration in the structure which is significant enough to bring about change in the system.

The most important motivating factor, however, in forcing fundamental change is the priority of the military itself. The defense-producing sector is dependent upon heavy industry, which, in turn, is dependent upon the economic base that supports it. A decline in the amount of capital available for new productive capacity could eventually result in declines in heavy industry production as available new capacity is used up. A reduction in heavy industry output means reduced growth in defense production and threatens the very force structure on which the Soviets base their military power. If the Soviets intend to maintain the defense effort as their primary objective and to provide the necessary priorities for defense production in the long term, they will ultimately be forced to implement nfully the corrective economic measures required for continued economic growth.

a. Economic Development: Extensive Vs. Intensive

The fundamental economic issues currently facing Soviet decisionmakers are essentially the same questions debated during the 1920s and early 1930s, and again in the 1960s. The basic issue then and now is the choice of a development strategy that will allow for continued economic growth. The outcome of the early industrialization debates favored rapid industrialization at the expense of other sectors, such as agriculture, transportation, housing, and light industry. From the political perspective, industry's faster development was viewed as necessary for two reasons: first, rapid development of industry controlled by the state would prevent the return of capitalism; second, it would provide the means to support a military buildup to defend the

USSR against surrounding hostile imperialist powers and to enhance the Soviet position in the international arena. From the economic perspective, rapid industrialization was chosen as the fastest method to bring about the nation's economic development.

The exploitation of other sectors, primarily agriculture, in favor of industry, especially heavy industry and defense-related production, has meant unbalanced sectoral growth. Despite the priority given the industrial sector in Soviet development strategy, the interdependence of sectors still remains. Growth is required in the other sectors to support the accelerated growth in the industrial sector. If not, the retarded sectors, such as agriculture and transportation, will eventually be unable to support the level of development attained in the industrial sector and will ultimately slow not only growth in industry but throughout the economy. The Soviets must at some point rectify the imbalance if they want to continue economic development and prevent economic stagnation.

Up through the 1960s, the Soviets had exclusively pursued an extensive development strategy favoring rapid industrialization. Such a strategy required the investment of ever-increasing quantities of resources in the production process. The fact that these resources (labor, capital goods, and natural resources) were relatively cheap and plentiful at the time enabled the Soviets to achieve relatively high economic growth rates.

The increasing scarcity and cost of economic resources since the mid-1970s has been recognized by the Soviet leadership in their decision to switch from extensive to intensive development. In intensive growth strategy, increased rates of growth are achieved through higher rates of productivity and technological improvements (quality) to inputs, as opposed to achieving economic growth through the application of more and more readily available resources. One of the major goals of the Eleventh Five Year Plan, 1981-85, is to achieve approximately 90 percent of national economic growth through improved labor productivity, a startling admission by the Soviets of their need to rely on intensive rather than extensive economic development. However, Soviet attempts to improve labor productivity and to achieve technological improvements, both domestically and through imported technology, have been less than successful.

The Soviets' problems in implementing an intensive development strategy are twofold. First, the new strategy is incompatible with the existing economic structure, which was designed to take advantage of extensive growth. The second problem stems from leadership resistance at all levels of Soviet economic management to many of the features inherent in the concept of intensive growth itself. Greater sectoral balance and rational economic mechanisms (prices, profits, wage systems, accountability) require new attitudes toward decentralization and sectoral priorities in investment and resource allocation, and toward "market" concepts alien to Marxist ideology. Consternation over sectoral priorities has naturally produced considerable opposition to change from those sectors traditionally receiving high priorities.

The military and defense industrial sector, which has grown both very secure and very powerful under the umbrella of primary national objective, would most likely protest sharply any suggestion of change in priorities, even should such change benefit all sectors in the long run, including their own. Any attempt to implement serious change that would improve consumer welfare and thus potentially boost labor productivity would require the infusion of productive resources on which the defense sector has always had, and continues to have, first claim. These resources include not only large increments of investment, raw materials, and additions to the labor force but also the most highly trained and skilled workers in the country, as well as the most modern and productive technology and equipment, whether produced domestically or acquired from abroad.

Demands from the consumer sector, on the other hand, are beginning to put the same pressure on allocation choices that military-industrial demands have made in the past and continue to make on the Soviet leadership. These pressures from the nondefense-related sectors become especially acute when the total amount of available investment funds and resources is growing much more slowly than in the past. This is not to suggest that resources would necessarily be reallocated from the defense to the civil sector. It is conceivable that the increments going to the defense sector could become smaller, translating into a slower overall growth rate for defense than in the past, but still maintaining a definite positive rate of growth. Such a policy would then permit increments to other sectors to grow at somewhat faster rates, allowing for greater balance while providing for defense's continuing priority. The need to stimulate the economy as a whole and to provide for future industrial growth ultimately will determine the amount of sectoral balance Soviet leaders agree upon.

b. Problems Implementing Growth

Since the current economic system and structure is incompatible with the new strategy of intensive growth, this raises a second major issue which the Soviet leadership must address. The current economic structure, which is highly centralized and controlled from above, was designed to achieve rapid growth through accelerated industrialization. By consolidating management of economic resources, the Soviet leadership has sought to insure that resources would respond quickly and directly to the needs of the administration, especially those required for military development.

Centralized, directive planning was considered by the Soviets to be the most effective method of directing the total national economic effort toward rapid industrialization and military buildup. However, the Soviet centralized planning structure reduces, without totally eliminating, the role of money, prices, and profits. Market-type tools such as these would help rationalize the economic mechanism, produce greater efficiency, provide incentives for greater labor productivity, and introduce responsibility into the system. These are the elements required for intensive growth. A new structure which would provide for an intensive growth development strategy would most likely reduce the degree of centralization in economic decisionmaking at the lowest levels at least and offer an atmosphere conducive to the use of some of the economic tools necessary for greater efficiency and productivity.

On 12 July 1979, a joint party-government decree was issued which made changes in planning and industrial management. This move was not aimed at structural change but rather at rationalizing the existing structure through greater centralization and tighter controls for administering the economy. The role of GOSPLAN was upgraded and plans were made even stricter. The latest move has been the formation of new organizations designed to streamline the current structure but which, instead, appear only to add new layers onto the already centralized, overburdened bureaucracy. One such organization is the Territorial Production Complex (TPK), created in some areas to carry out integrated regional economic programs, primarily for raw materials and energy development. Although the enterprises under a TPK are functionally interrelated and grouped together geographically, they are still administratively distinct and are controlled by their respective ministries, whose interests may or may not coincide with those of the regional TPK. The ability of the TPK to operate independently of these ministries has not yet been demonstrated. The difficulties of providing horizontal integration within a vertical structure and of integrating regional needs into national plans are stumbling blocks the Soviets have been unable to master. It is doubtful, therefore, that the TPK will be able to provide sufficient restructuring to accommodate the new development strategy.

Similar to the TPKs in some respects are the special target programs that have been set up to handle the major problem areas or priorities in the Soviet economy. There are 15 of these target programs, 4 of which are regional development plans. One of the most visible of the target programs is the "Food Program," which was publicly acknowledged as the highest priority problem in the Soviet Union by Brezhnev, and which Andropov agrees must be completed.

The need for fundamental reform within the agricultural sector is explicitly acknowledged by Soviet leaders, especially in the midst of a fourth consecutive poor harvest. The controversial concept of rayon agro-industrial complexes (RAPOs) is supposed to be an integral part of the Food Program to provide needed structural change. However, the documents outlining the role and powers of RAPO do not yet provide the operational means for the concept to be effectively implemented. The debate surrounding the issue has been highly visible and does not bode well for the future of the program.

The "Food Program," like the other target programs, is an attempt to pull together an entire production complex in order to address a specific problem area. In this case the desire is to integrate the agro-industrial complex, including all those industries with both backward and forward linkages to agriculture,* and to put them under centralized control for planning, management, and resource allocation decisions. This has led to the creation of central commissions in the national Council of Ministers for most of the target programs. GOSPLAN has also taken on the role of "ministry" in some cases for special projects that are being allocated resources separately from allocations made to the ministries normally responsible for such programs. This entire process appears to have added to the already complicated and cumbersome centralized planning process and administration. No real structural reform is likely to result from the process and further economic development will be difficult to achieve with only marginal changes such as these.

Two points are noteworthy in the context of target programs and the "Food Program," in particular. First, the Soviets have failed so far to come to grips with the food problem, because they are trying to improve agriculture without changing the structure. The RAPO concept has yet to provide effective structural change which could help solve this problem. At the same time, the Soviet leadership has been forced to acknowledge the much higher productivity of private plots, and has encouraged, within limits, the production of certain high-demand food products, such as meat, poultry, eggs, and fresh vegetables. Private plots are an excellent example of intensive, as opposed to extensive, growth in the development of the agricultural sector. That is, productivity, or output per worker on the private plot (wherein the worker receives direct and immediate benefit from his own labor) is substantially higher than in the collectivized sector of agriculture. Soviet leaders, however, have limited the size of and benefits to these private plots, because open and unconditioned endorsement of private agriculture would, in effect, be a major structural change, and the leadership has not yet agreed to let this occur.

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*The "Food Program" excludes ministries producing equipment for food production and the USSR Ministry for Production of Mineral Fertilizers. The general term "agro-industrial complex" in the Soviet Union includes these elements, as well as other industries related to agriculture and food production.

The second interesting point about target planning is that it appears to be a consistent and logical solution to Soviet economic problems under the Brezhnev administration. Ruling out structural change Soviet leaders took for a model the one area that has progressed steadily despite the economic slowdown. That model is the management of the military-industrial complex, which over the years has developed a strong organization and structure unique to its own production requirements, and which target plans strongly resemble. The defense-producing sector of the economy has achieved increased productivity--precisely what is required throughout the entire economy.

Further, the target programs currently being developed are similar in many respects to the Military-Industrial Commission (VPK), by serving as focal points for integrating, monitoring, and directing high-priority programs through the system. The VPK has filled this role for the military by bringing together the defense industrial ministries, the Ministry of Defense, the party, and GOSPLAN's planners, for all aspects of the economy affecting defense production. It is conceivable that this method of management was what Brezhnev had in mind when he made his plea in 1980 for the defense sector to help the civil sector. It is interesting to note that the transfer of Ya. Ryabov from party secretary for defense industrial affairs to GOSPLAN deputy chairman coincides with the development of target planning. Ryabov's familiarity with defense management could well have influenced and continued to affect the development of these programs throughout the economy as an alternative to structural change. Ryabov is also the chairman of two GOSPLAN commissions for target programs: the commission for use of secondary raw materials for the food program and the commission for the comprehensive use of minerals.

The reform measures put forward by Soviet leaders give the appearance of leadership action and fundamental change, but have avoided the real issues of development strategy and genuine structural change. This is probably the result of both the attitudes of the top leaders and bureaucratic resistance to substantive structural changes. Opposition to structural changes in many cases exists because of vested bureaucratic interests in the present structure. In addition, however, resistance on the part of some leaders is tied directly to the development strategy now required for economic growth. If structural change is thwarted, the development strategy and its inherent implications for resource allocation and sectoral growth priorities will also be undermined. Many opposed to structural change are, in effect, opposed to the ramifications of the intensive growth development strategy.

Ultimately, the decision to implement a new development strategy and to undertake the necessary economic structural change will be based on the political leadership's willingness to give up some degree of political control for economic efficiency. Failure to resolve the conflict between the two has stymied structural change because the shape of the structure depends on how the economy is to be controlled. Until the Soviets resolve this economic management problem, it will be almost impossible to move onto the issues of structure and development strategy.

One major source of economic inefficiency within the Soviet system is duplication of responsibility both within the state structure and between state and party entities. It is also a major barrier to the introduction of market-type mechanisms, because such policies would entail at least some loosening of political control over economic management.

At the same time that the Party leadership at all levels realizes the risk of reducing efficiency through too detailed political control, it is also convinced of the need to infuse political direction into the efforts of even the smallest economic unit. For the Soviets of today, the problem becomes one of deciding to what degree political control should be sacrificed for an increase in economic efficiency. This would entail some adjustments in political perceptions if they wish to attempt structural change and implement an intensive growth strategy. The challenge is whether this can be carried out without being seen as a threat to the party itself. It is uncertain whether the party is willing to mandate change that would, to some degree, reduce its control over the economic mechanism.

c. Debate Over Alternatives

Soviet economists have responded to the call for solutions to the USSR's sluggish economic performance with a wide range of proposals for change, such as shifts in resource allocations, programs to enhance labor productivity, and reorganization. These proposals form the bulk of options open to the leadership for consideration. However, there is no one thread of consistency running throughout the leadership that would allow them to be grouped or neatly classified on the various positions taken on these issues.

There are many among the leadership who still express support for continued high-priority investment in heavy industry, despite the need to promote intensive growth and its requirements. Before his removal from the Secretariat at the November 1982 Plenum, Kirilenko, in his public statements, had placed considerable stress on the heavy industry sector, as has Shcherbitskiy, Tikhonov, and Ustinov.

On the other hand, Chernenko's public statements tend to place relatively strong emphasis on the need for more investment in and greater promotion of consumer sectors, such as light industry and agriculture. This may partially reflect his call to the party to stay in tune to the populace and prove to the consumer that the regime can provide for his needs. It is also the primary means of providing material incentives required to increase labor productivity. Chernenko defends this position by maintaining that if popular needs are ignored for the sake of production, not only people but production will suffer, too. In this connection, Chernenko has been the major spokesman for the "Food Program," which calls for large investments in agriculture and its infrastructure. Gorbachev, the Central Committee secretary in charge of agriculture, has also emphasized the needs of the agriculture sector, as well as the newly appointed full member of the Politburo, Aliyev.

The investment priority issue divides those who favor continued high growth in defense expenditures and those who appear to consider slower military growth as desirable. A policy favoring slower military growth would allow reallocation of investment funds within the economy to promote growth in other sectors. One argument being made in the Soviet Union is that if the defense sector grows more slowly now, to allow the other sectors to catch up, they will be better able to support the defense effort and will allow for even greater growth in the defense sector in the future.

On the other hand, some among the Soviet military establishment have been concerned about reduced investment in industry because of the impact this would have on future production capabilities to support the military. The investment plan in defense production has been criticized, fearing that development of future weapon systems is not being adequately provided for.

These views were firmly reiterated in a 9 December 1982 article in Krasnaya Zvezda by Major General Gurov. This latest article, however, was balanced by a call for cost-effective use of the resources that are made available to the defense sector. This position ties in very closely with that of Ustinov and the late Brezhnev in their attempts to reassure the military establishment that defense remains the first objective of the nation and to reaffirm the correctness of party economic policy and the ability of that policy to adequately meet defense needs. Brezhnev, in an unusual appearance before military generals on 27 October 1982, seemed to respond to some military concerns by pointing out that competition in military technology has "sharply intensified," and it would be "inadmissable to lag in this competition." At the same time, though, Brezhnev asserted that the party was providing for the military's existing needs and that they should make the best use of what they were given. In addition, Ustinov in a 12 July 1982 Pravda article, and again in a November 1982 Kommunist (No. 11) article, stressed the party's leading role in military affairs and policies, and that the correctness of such policies, including economic policies, was indisputable.

Interestingly, in this debate on investment issues, Andropov currently appears to be straddling the fence. Although he has supported heavy industry in the past, his present emphasis appears to be on those areas required to break bottlenecks in the economy, such as transportation, unfinished construction, and retooling and modernization of machinery. The Food Program is still considered important, but it seems to have lost some ground since Brezhnev's death, and is seen as a long-term program not intended or designed to provide immediate, quick fixes for agricultural problems. The primary emphasis now appears to be focused on agricultural infrastructure and food-producing industries, rather than on direct investment in agriculture itself. On the other hand, Andropov's repeated emphasis on the need to approach the issues of detente and arms control from a position of military strength, and his strong reaffirmation of support for the military and of the need to provide for adequate defense, suggest continued support for these objectives in the future. This rather balanced approach on investment issues provides Andropov with considerable flexibility by not ruling out, early on, some of the policy options which the leadership can use to approach the problems involved in the stagnating economic situation.

With little shift in investment among sectors expected in at least the short term, the various leadership positions on the problem of productivity take on added significance. Traditional exhortations to the worker, increased propaganda and party agitation, and ideological motivation are still prescribed by some leaders; however, many leaders, feel that stronger measures will be needed to achieve results. Such measures include negative as well as positive incentives which that workers to increase production. Some suggestions, such as the "link" system of agricultural production, which ties the worker's income directly to his production, have the added benefit of promoting worker and manager responsibility for production.

Since his promotion to General Secretary, Andropov has approved a number of measures that appear to be quite innovative in their attempt to raise productivity in the short term. In addition to giving the green light to agricultural "links," Andropov has also increased the use of local markets as distribution points for food which is perishable and which suffers great losses in transportation and from inadequate storage facilities.

Andropov, also appears to be focusing on improving performance in the industrial sector by linking higher wages to increases in labor productivity and by improving industrial management.* In addition, Andropov's early personnel shifts suggest a tough new crackdown on economic corruption, blackmarketing, and low levels of labor discipline.

In terms of implementing the strategy of intensive growth, the continued emphasis on military growth, in the short term at least, will reinforce investment priorities for heavy industry and the military complex. Reallocation of investment funds is therefore highly unlikely. Sectoral priorities will most likely remain relatively stable, as a result, for the remainder of the Eleventh Five-Year Plan period. The benefits to be derived from implementation of intensive growth in the short term will depend largely on any gains to be realized from the measures put forward by Andropov to increase labor productivity and managerial efficiency. Long run growth will depend on Soviet ability to effect structural change.

None of the top Soviet leaders in the Politburo and Secretariat have expressed opposition to the party's overall directing role in the economy. Many of them have even endorsed a stronger party role in economic management.

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*Andropov has proposed changes in the wage fund which are designed to increase the output of consumer goods by the machinery sector (whose primary output is military hardware and capital goods) without requiring either changes in existing priorities or changes in resource allocation. Further, his recent removal of the Minister of Railroads can be seen as a warning to other industrial managers to improve the efficiency and responsiveness of their organizations (or, in Soviet terms, greater discipline).

Increased party participation is viewed not only by the top leadership but by lower Party levels as well as a solution to overcoming bureaucratic inertia and red tape found throughout the centralized ministerial structure. Other leaders, however, are apparently opposed to party "interference" in economic areas, calling on the party, instead, to provide the ideological impetus for improving economic performance.

The highly centralized, ministerially organized economic structure has been considerably resistant to change, both to the structure and its system of operation. Part of the reason is the ability of this organization to serve the defense industrial complex. The structure also forms the power base of the ministries, who as a whole, are strongly opposed to any loss of control at any level.

Many of the top leadership, however, appear to be supporting various forms of decentralization, giving greater decisionmaking responsibilities to lower levels for microeconomic decisions. Changes such as these, have in general been resisted by ministerial officials. The latest organizational proposal, the rayon agro-industrial complex has caused considerable debate among top Party and ministerial officials alike.

Andropov's public statements on the issue of economic management appears to reflect his experience in Hungary as Soviet ambassador prior to, as well as after, the 1956 uprising. While advocating stricter and tighter discipline among leaders, managers, and workers, he seems to support greater decentralization of decisionmaking and responsibility for economic production at the lower levels of economic management. While in Hungary, he oversaw the institution of the New Economic Mechanism (NEM)* that gave new life to the Hungarian economy. In his speech at the 1982 November Plenum, Andropov emphasized those aspects of the economy that require change. He noted that the transition to intensive economic development is proceding too slowly. While emphasizing that planning and management from the center must improve, Andropov acknowledged that more independence should be granted to associations and to industrial and agricultural enterprises at the microeconomic level, with the provision that their responsibility must be increased as well. The major macroeconomic decisions would remain at the top levels of decisionmaking and would be highly centralized. This idea is the fundamental underpinning of the NEM concept, that incorporates many of the changes that would be necessary to implement intensive growth.

In addition, Andropov gives heavy consideration to implementing the reforms that the Soviets have already achieved on paper but not in practice. The recent measures on consumer goods and wage funds reinforce this pattern. Such measures could be quite effective while giving the leadership greater time to consider major structural adjustments over the long run.

5. CONCLUSIONS: SOVIET UNION

The Soviet leadership currently is faced with difficult decisions about the future course of the economy while sustaining its military effort. The slowing of economic growth because of low productivity, among other reasons, endangers the long-term objective of maintaining a military force capable of providing a base for Soviet international legitimacy. Unless the Soviets are able to improve the economic system, their ability to sustain growth in the defense sector will be undermined, particularly in the long run. To achieve their objective, the Soviets will need to realize a rate of economic growth capable of sustaining the desired level of defense growth.

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*The NEM is an experiment in decentralization which allows the use of indirect economic regulation through market forces at the microeconomic level, while still providing for formulation of state plans and determination of macroeconomic goals by central authorities.

The development strategy necessary to improve economic growth requires fundamental changes to the economic system. Past attempts at increasing growth by only marginal changes have not been successful. The top Soviet leadership has not only generally recognized the need for a new development strategy based on higher productivity but has looked and continues to look at the various options for instituting changes in the economic structure in order to implement the development strategy. In addition to focusing on increased productivity and better use of resources in general, this strategy stresses increased responsibility and responsiveness at all levels in the economic system.

Such changes are likely to be resisted and to generate economic management conflict. Successful implementation will require a leadership willing to force the system to change. Despite initial resistance to structural change, military and defense industrial managers could eventually be convinced to promote the implementation of structural changes when it becomes apparent to them that future growth in defense production is dependent on sustained overall economic growth.

In the short run (3 to 5 years), changes in economic priorities and policies, especially with respect to defense, are not expected to occur. Growth in defense spending will continue during the rest of the 11th FYP (1981-85) at 8 to 9 percent in current prices. Any significant alteration or shift in resource allocations would require major changes in the middle of the

11th FYP, and although not without precedent, it would be more typical of Soviet decisionmakers to include such changes, if they occur, in the 12th FYP (1986-90). In addition, Soviet systemic inertia and considerable resistance to change, both of which would need to be overcome, argue against any radical changes being conceived and implemented within the shorter timeframe.

In the medium term (5 to 10 years), the required growth in other economic sectors needed to stabilize the economy could mean slightly smaller increases in the defense sector, in order for defense growth to continue to increase in the long term. If changes are brought about in the 12th FYP, the time needed to implement them and to get the economy back on course will probably show little visible results in improving actual economic performance for the next 8 to 10 years. During this time, the economy most likely will experience continued stagnation, as bureaucratic inertia and resistance is overcome and new behavioral patterns are developed in the management strata.

In the long run (10 to 20 years), the only real solution to the economic growth problem will be structural changes which allow for sustained economic growth. Such changes would provide for continued and higher growth in defense production in the future.

6. INTRODUCTION: PRC

Change is evident in China's search for the correct formula for successful modernization, and in the country's interaction with the rest of the world. Since the early 1960s Chinese leaders have stressed the continuity of their policy: strategic independence, economic self-reliance, and opposition to hegemonism. Both change and continuity exist as China's post-Mao leadership has attempted to overcome numerous economic problems by reform and reorganization--both internally and with help from abroad.

China's general economic objective is to quadruple the gross annual value of industrial and agricultural production by the year 2000. To achieve this objective, it would have to have an average annual increase rate of over 7 percent throughout the entire period. Agriculture, energy, transportation, education, and science are the major targets for economic development in the first decade and serve as the basis for future development in the second decade.

To meet even the limited goals of its current Five Year Plan (1981-85), formidible problems of inflation, unemployment, energy shortages, budget deficits, and a difficult world market will have to be overcome. Beijing is searching for the best combination of central planning and market-oriented reforms that will increase productivity, raise living standards, and improve technology without exacerbating the problem areas.

The plan for the domestic economy in 1983 shows a modest growth, indicating a concern for improving efficiency rather than short-term gains in output. For example, the Chinese expect industrial production to rise by 4 percent, and the productior of selected steel products will be cut to reduce inventories while grain and cotton output are projected to rise by just over 2 percent. In addition, slow growth in the energy sector (a 3-percent increase in coal) may be a constraint on the already modest targets. The following other points address major areas of the economic outlook for 1983:

- Inflation is expected to continue at about 10 percent, some six points above Chinese estimates.
- Steps will be continued to correct the supply system problems and to build up its infrastructure, but will not achieve success in overcoming unwanted inventories unless they target economic demand instead of gross output.
- Beijing will continue to incur substantial budget deficits until the government begins to halt or reduce price subsidies to peasants and wage subsidies to urban workers.
- Rising consumer expectations from the earlier increases in the standard of living will cause concerns.
- Unemployment will be an increasing problem in 1983, as jobs must be found each year for 5-6 million high school and college graduates as well as for former employees of obsolete and wasteful factories closed down as part of the economic readjustment.
- China's irrational price system will continue to hamper progression until Beijing changes its price system to more accurately reflect the relative scarcities of commodities.
- Current plans to restrict the population to 1.2 billion by the year 2000 appear unrealistic, particularly in 1983, when the population will grow to more than the 14-million target.

- The current international recession will pose difficulties in China's meeting its goal of maintaining and expanding access to Western markets, especially as other nations put up trade protection barriers.
- China will continue to encourage foreign investment through joint ventures, cooperative production projects, and compensation trade.
- China's capacity to absorb foreign technology will remain constrained by shortages of qualified managers and technical people.

Perhaps the largest problem facing the central leadership will be efficient implementation of the plan by industrial and commercial managers. Often opposing interests of local and central authorities cause a seemingly permanent dilemma. Beijing, for example, likely will find it very hard to cut back local investment spending. Although some gains in control have been made, the central leadership must continuously keep controls tight if they expect to meet their goals.

7. CHINESE ECONOMIC MODERNIZATION

a. Post-Mao Planning, Policy, and Problems

Economic modernization requires the establishment of a reasonably well-conceived set of plans and policies in order to be effective. In addition, stability or at least careful transition is needed over the long run to provide continuity without the costs of mismanagement. In China's case, however, no single consistent development strategy has prevailed for very long, with policy shifts occurring almost constantly from one period to another. As a result, sector priorities, modernization techniques, and management organization have all changed dramatically--often very quickly.

Following the death of Mao in September 1976, and the subsequent purge of the "Gang of Four," the "Four Modernizations" economic development program promoted in 1975 by Zhou Enlai was reinstated to recoup the losses of the Cultural Revolution. This program prioritized the four major economic sectors, with agriculture first, followed by industry, science and technology, and national defense. The ambitious 1976-85 10-year plan (announced in 1978) proposed massive acquisitions of Western machinery and technology coupled with a movement away from the long standing position against incurring foreign debt and collaborating with foreign companies in joint ventures. Formal commercial links were expanded to promote trade, thousands of students were sent to Western schools, and Western experts and firms were invited to conduct industrial seminars. The new open-door policy was begun at an opportune time because industrialized countries were experiencing lagging growth rates at home.

The "great leap outward" policy brought dramatic increases in total trade, but the Chinese incurred large deficits. Shortages of experienced engineers and managers, the lack of an adequate infrastructure, coupled with financial constraints all limited China's capacity to absorb Western imports. When it became obvious that the goals were much too high and virtually impossible to reach, however, a new plan known as the Three Year Retrenchment (1979-81) was adopted. This scheme suspended many contracts with Japan, France, and West Germany and ordered a moratorium on new major contracts, shifting capital investment in the metallurgical, chemical, and machine building industries to shorter term increases in agriculture and light industries in order to obtain a more balanced economy and faster development.

In June 1979, the leadership established new organizations to manage foreign investment and trade and adopted new measures to encourage foreign investments and to lure foreign private capital. A further cutback in the heavy industrial area came in 1980. This new flexible, pragmatic policy of spurring Western technology within its limits of ability to pay and absorb appears to be working: trade has a positive balance which provides funds to obtain new equipment; limited capital construction investment has been renewed; the pace of modernization is increasing; and China continues to avoid overdependence on any other country. Nevertheless, a number of factors will continue to hinder progress:

- The demand for higher living standards will tend to curb the growth of food exports.
- The pressures of domestic demand and inadequate production capacity will limit the growth of light industrial manufacturing, particularly at the higher end of the technology scale.
- Rising protectionism by Western countries will hinder expansion of textile exports.
- The long lead time necessary to increase crude oil production plus a substantial rise in domestic demand will inhibit the rapid growth of petroleum exports.

China's leaders likely will continue to suffer economic setbacks, while policy shifts will be constantly required to adjust and adapt ideas to fit seemingly endless problems. It appears, however, that if the current pragmatic leadership (or its successors) maintains control, significant advancement will be possible.

b. Sixth Five Year Plan

Since the idea of 5-year plans was borrowed from the Soviet Union in the early 1950s, China has lived through five generations of 5-year plans. Two were ignored, two were discarded by the "red tides" of the Great Leap Forward and the Cultural Revolution, leaving one lasting 2 1/2 years--the first (it covered the 1953-57 period, but was not published until 1955). The current plan is the sixth and covers the period 1981-85, although it was only promulgated in December 1982. After 2 years of debating the issues and monitoring austerity measures, the Chinese feel the plan is realistic enough to work.

The major economic goal established in the fall of 1982 by the 12th National Party Congress was to quadruple the total annual output value of industry and agriculture within 20 years. The Sixth Five Year Plan is to lay a solid foundation--the more important features include:

- A modest projected industrial and agricultural growth rate of 4 to 5 percent per year.
- A state budget running a small annual deficit, with expenditures rising at 3.3 percent per year. Capital outlays are projected to stay relatively flat at US $24 billion per year but with the portion devoted to key central projects increased.
- Nearly 40 percent of total capital investment is targeted for the bottlenecked energy and transport sectors of the economy.
- An 8.7 percent average annual increase in foreign trade.

- High attention to the issues of production efficiency increases and product quality increases as reflected by a targeted 2-percent annual increase in labor productivity and a 2.6-to 3.5-percent decrease in energy consumption per unit of output.
- Measured reforms in wages, prices, and taxes to stimulate productivity.
- Moderate improvements in social welfare and living standards (the goal is to keep them commensurate with the pace of economic growth).

The overall tone as well as the specific targets distinguish the Sixth Five Year Plan from earlier ones. There is a notable absence of political rhetoric and a definite fostering of more realistic targets.

The plan stresses technical transformation of existing enterprises and increasing production by tapping existing potential as opposed to building new enterprises and expanding startups. This will be done by bringing science and technology into full partnership with the production progress, which, in turn, will be developed through the training of professionals and the education of workers.

Finally, the plan stipulates three important measures for the next 3 years:

- Replacement of profit-delivery with fixed taxation to give enterprises the incentive to strive for good business results.
- Full planning for the role of cities in the field of economic organization (to limit separation of urban and rural areas and to limit the number of leaders involved).

- Reforming the commodity circulation system to promote commodity production and exchange (development of a state-owned collective individual commerce and self-marketing mechanism).

The goal of the Sixth Five Year Plan is efficiency leading to faster growth in improving economic conditions, and the results of the past 2 years show a good beginning. To quadruple agricultural and industrial production by the year 2000 will require an annual growth rate of over 8 percent from 1986 through 2000. This, in turn, will require a sixfold to eightfold increase in energy production over that same period. It is doubtful that the Chinese will be able to overcome the energy constraint. Moreover, expansion of the production base will make it increasingly difficult to raise the economic growth rate. The Chinese apparently realize that the only real way to overcome this constraint is to increase production rapidly through technical innovations throughout the economy in all of the existing 400,000 enterprises. Since the Chinese are short of both financial and managerial/technical human resources, total technical transformation will be difficult to obtain. Although slow and steady progress will be made, the quadrupling goal unlikely will be met.

c. **Government Reorganization**

The 12th Chinese Communist Party Central Committee in early September instituted several organizational and personnel changes that will advance the political goals of de facto leader Deng Xiaoping and strengthen the authority of his proteges. These changes represent a major step in the consolidation of power of Deng and his reformist wing of leadership. However, party conservatives apparently gathered enough strength to block some of

Deng's key objectives. He has restructured the party to preclude an overconcentration of power in the hands of a few leaders, but he did not achieve significant immediate success in turning over the reins to a younger group of successors. The 12th National Party Congress achieved not only organizational changes that should help the reformists to solidify their economic policy line but also personnel changes that reflect the degree of their accomplishments.

d. 1982 Economic Performance

According to Chinese announcements, the value of China's "total product of society," roughly equivalent to gross national product, increased in 1982 by 9 percent compared to 1981. Agricultural production attained a record 11 percent growth in value with grain production reaching 353 million metric tons--8.7 percent more than 1981 and 6.4 percent over the previous record set in 1979. China's industrial output increased at a 7.7-percent rate, but heavy industry, which had a planned growth rate of only 1 percent, grew at a suprisingly high 9.9 percent and created extra demands of the infrastructure. In addition, China finished the year with a healthy trade surplus and a decreased budget deficit.

Capital construction investment was far beyond desired levels and grew by about 25 percent, with budget-financed capital construction investment dropping below 50 percent of total capital investment. The share held by heavy industry increased significantly while the priority sectors of education, agriculture, science, and energy declined. Industrial capacity was expanded during 1982 despite the apparent inefficiencies tied to over 41 percent of scheduled projects remaining unfinished and more than a quarter of newly added fixed assets failing to go into operation by year end.

Domestic retail sales rose by 7.3 percent in real terms, while retail prices remained relatively stable with only a 2-percent growth during the year, much less than the announced growth in per-capita incomes of 13 percent for the rural population and 5.8 percent for those in urban areas. Jobs were found for 6.7 million people, and the population grew 1.45 percent, an increase over the 1981 rate of 1.4 percent.

Most gains in economic efficiency came from the agricultural sector which flourished at 7 percent above plan and 11 percent higher than in 1981. This progress can be largely attributed to good weather and the awarding of incentives to boost production by linking income more directly with increased output, expanding the farmer's decisionmaking power, and giving him a freer hand in marketing own-quota production.

Industrial output exceeded the state plan by 3.7 percent and the 1981 output level by 7.7 percent. Light industry production growth of 5.7 percent was greatly overshadowed by heavy industrial output, which kept light industry's share of the gross value of industrial output to only barely above 50 percent.

The Chinese claim to have shrunk their budget deficit from US $11.6 billion in 1979 to about $1.8 billion in 1982. However, much of this decrease appears to have come from creative accounting techniques such as counting revenue bond sales, foreign loans, and transfers from localities with budget surpluses. Nevertheless, state revenue was greater than expected because income from taxation exceeded the targeted level. Revenue for transportation increased in 1982 as well, but that from industrial enterprise stayed at the 1981 level. This added revenue was quickly used up by a large rise in spending on culture, education, public health, administrative costs, and in outlays for agricultural incentives. In all, the deficit was not as high as in recent years.

Supply shortages continued in 1982. Aggravated by China's inefficient distribution system, factories have been closed down for relatively long periods because of shortages of raw materials or other inputs. Shortages of consumer goods forced consumers to save recent income gains, as indicated by the striking growth in bank deposits of 31.5 percent in urban and 44.5 percent in rural areas from 1978 to 1982. In contrast, the industrial system encourages unneeded production. By targeting gross output value instead of economic demand, unwanted inventories have accumulated in many areas; for example, selected finished steel products. In spite of the continuing hindrances to a better economic system, China made new successes in its national economy in 1982 because of the full-scale implementation of readjustments, restrictions, and reorganizations.

8. CHINESE CIVIL BASIC INDUSTRY TRENDS

a. Energy Production

(1) Fuels

China made modest progress in increasing overall energy output in 1982, but natural gas production was down again for the third year in a row as shown in table 25. The 1982 statistics reflect government policy in the Sixth Five Year Plan (SFYP) to emphasize the coal sector while maintaining the current level of oil production, at least until 1985. Natural gas is still only a minor energy source except in Sichuan Province.

Table 25

PRC Energy Production (1970-82)

	1970-78	1979	1980	1981	1982
Coal (million metric tons)	330-618.0	635.0	620.0	620.0	666.0
Oil (million metric tons)	30-104.0	106.2	105.9	101.2*	102.1
Natural Gas (billion m3)	3-14.3	14.5	14.3	12.7*	11.9
Electric Power (billion kilowatt hours)	107-256	280	301	309	325

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*Revised figures.

Beijing's projections in the plan call for an overall annual growth in industrial production of 4-5 percent and a concurrent growth in energy output of only 1.4 percent. The government recognizes that these growth rates are incompatible and decided that the difference will have to be made up through conservation of energy--oil in particular. In fact, Beijing currently gives energy conservation a higher priority than energy resource development. In the past, China encouraged the growth of small, native-designed industrial plants all over the country, a practice that bred inefficiency and waste. Current plans are to shut down or merge plants that waste energy; to renovate, where possible, using energy efficient technology; to substitute coal for oil in heavy industry; and to make fuels more expensive at the local level. Beijing hopes to reduce oil consumption by 20 million metric tons a year by 1990.

Beijing's commitment to maintaining a coal-based economy is predicated upon large proven coal reserves that are accessible and convenient to actual and potential consumers. Emphasis in the Sixth Five Year Plan will be an increasing coal production at existing mines through mechanization, mine consolidation, and improved administration. Target provinces include Shanxi, Hebei, Nei Monggol, Liaoning, Anhui, and Shandong. The production goal for 1985 is 700 million metric tons. New coal bases, currently planned or under development, will not provide any significant output before 1985, but are projected to be a major factor in China's push to double coal production by the end of the century.

In April 1983, Beijing announced that China would build its first coal slurry pipeline, between the Jungar opencut coal mine in Nei Monggol and the coal port at Qinhuangdao. The pipeline will also serve a new Shanxi mine at Pingshuo. Both of these mines are new coal bases under development. The pipeline will be more than 700 kilometers long and carry up to 30 million metric tons of coal per year. Beijing has expressed interest in building several other coal slurry pipelines to supplement rail transport, a bottleneck that continues to hamper movement of coal from mine to consumer. As in other industrial sectors, foreign loans and technical assistance remain crucial in China's plans to modernize its coal industry.

There were a few noteworthy developments in the oil sector in 1982. China managed to increase oil output slightly, but no major increases are expected in the next 3 years. Beijing committed itself only to maintaining oil production at the 100-million-metric-ton-per-year level through 1985.

The recent drop in crude oil prices and the subsequent loss of export earnings will hurt China's efforts to acquire foreign technology and assistance. In 1982, the PRC exported nearly 20 million metric tons of crude oil and refined petroleum products valued at more than US $5 billion. In 1983, foreign exchange earnings from the same export level will drop about $700 million.

Beijing continues to negotiate with foreign oil companies seeking offshore exploration and development rights in the South China Sea. Progress toward successful agreements has been slowed most recently by the problem of dividing production and profits. Furthermore, the continuing worldwide crude oil surplus, uncertainty over future crude oil pricing, and oil company budget constraints make the Chinese offshore somewhat less attractive than it was in 1980 and 1981. Nevertheless, a possible breakthrough occurred in May 1983, when China awarded an offshore concession to a five-member consortium headed by British Petroleum. No details on the contract are presently available and, although no US firms were involved, the agreement may provide an adequate model for other contracts and hasten conclusion of negotiations for other concessions.

In other offshore activity, a joint Japanese and Chinese venture continued to drill successfully in Bo Hai, and the French company, Total, announced its first commercial-scale oil discovery in the Tonkin Gulf. Both groups could be producing oil by 1986. The only US firm to have signed an offshore exploration and development contract with the PRC began its first well off the southern coast of Hainan in January 1983.

(2) **Electric Power**

Electric power capacity and production rose again in 1982, but power shortages are still widespread. Growth of the electric power sector has been unable to keep pace with the increasing demand for electricity.

Although many large powerplants are under construction and the transmission system is being expanded and improved, inadequate power supplies will hamper the economy for several years.

Development of the electric power sector has a high priority, and the SFYP provides for increased exploitation of China's enormous hydroelectric potential and extensive coal deposits. The plan calls for construction to begin or continue on 15 large hydroelectric powerplants and 45 large thermal powerplants, mostly coal fired. Numerous small- and medium-size hydroelectric and thermal powerplants will also be built. In addition, construction will start soon on China's first nuclear powerplant, a small domestically designed plant south of Shanghai. A larger imported nuclear plant will probably be built near Hong Kong. All of these plants will add nearly 40,000,000 kilowatts of generating capacity when completed; however, only about 12,900,000 kilowatts of this will be in operation by the end of the current Five Year Plan. China's generating capacity at the end of 1982 was about 70,000,000 kilowatts.

China's present electric power transmission system of unconnected regional, provincial, and local networks, using mainly 220-kilovolt and smaller lines, is inadequate. These networks will be interconnected to form a unified, more efficient national network. Several 500-kilovolt transmission lines have recently been built or are under construction, and more will be required to transmit power from the new powerplants now under construction to distant consumers. The use of high-voltage direct-current transmission is also planned. This method is more efficient and less expensive for transmitting large amounts of power over long distances than the normal alternating current method.

Until China's electric power system can be sufficiently expanded and modernized, power shortages will continue to plague many areas. Stringent conservation measures will be necessary.

b. Strategic Metal Industries

(1) Introduction

The strategic metal industries will remain vital to Chinese economic development. Despite high priorities for development, the steel, aluminum, and copper industries encounter major problems resulting from poor plant design, inadequate and outdated technology, and a chronic lack of developmental capital. Table 26 provides data on metal production from 1977 through 1982.

(2) Steel Industry

The expansion and improvement of the steel industry remains critical to Chinese modernization plans. Although China produced about 4 percent more steel in 1982 than in 1981, the increase merely reflected a return to the 1980 level of production. This was proceded by a 1-year downturn, created by the emphasis of the retrenchment period on light rather than heavy industry.

To insure a future increase in steel production capacity, construction of the new Baoshan Iron and Steel Plant is continuing. Upon completion of the first stage, probably in 1985, that plant is expected to provide an additional 3 million metric tons of steel, almost 9 percent of China's current production.

A policy of renovating existing steel plants to increase production and/or product quality has also been announced. Although the size of the investment has not been determined, plans have been revealed to improve some of China's most important steel-producing facilities, such as Anshan, Benxi, Ma'anshan, and Beijing Shoudu.

Table 26

China Metals Production
(metric tons)

	1977	1978	1979	1980	1981	1982
Aluminum (refined)	400,000	400,000	415,000	415,000	415,000	*
Copper (refined)	300,000	300,000	320,000	320,000	320,000	*
Steel (semi-finished)	23,740,000	31,780,000	34,480,000	37,120,000	35,600,000	37,150,000

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*Not available.

A shift of emphasis--from the production of carbon steel to the production of speciality steels--has also been reported. An increase in the production of alloys, stainless steels, and other specialty steels will reduce China's import requirements and provide many of the materials critical to the development of the aerospace and other specialized industries.

(3) **Aluminum Industry**

The Chinese aluminum industry has experienced substantial growth through significant expansion of existing facilities and the construction of new plants. The industry has been consistently unsuccessful in satisfying domestic needs, however, and China must continue to import refined aluminum. China's current structure of industrial priorities--emphasizing light rather than heavy industry--does not assist the aluminum industry's development. Since the Chinese leadership apparently recognizes the importance of aluminum as a strategic material vital to both military and civilian industries, it is anticipated that this industry will receive emphasis, including attempts to obtain infusions of foreign capital, equipment, and technology. An example of such emphasis and foreign aid is the 80,000-ton-per-year aluminum refinery completed by a Japanese firm at Guiyang in Guizhou Province.

(4) **Copper Industry**

The Chinese consider copper to be one of the more important areas for expansion in their heavy industry program, as evidenced by the recently completed copper smelter in Tongling. However, future expansion will be highly dependent on foreign aid and the acquisition of new technology. Moreover, China probably will promote development of its copper industry by employing methods to reduce the strain on capital investment funds. These methods include seeking loans at reduced interest rates, joint ventures with other nations, and exchanges of raw material for foreign technology and industrial hardware. Like the aluminum industry, copper imports will continue at a high level, currently about one-third of the PRC consumption, because of chronic domestic inability to satisfy demand.

9. CHINESE INTERNATIONAL ASPECTS

a. Economic Assistance Provided

China continued to restrict its economic aid extensions to less developed countries (LDCs) in 1982 by halving again what it had reduced by almost 80 percent in 1981 as shown in table 27. Fluctuations in aid extensions have characterized the Chinese record of the past 10 years. The early 1970s showed an annual commitment above the 10-year average annual extension amount of slightly above $250 million. The smaller extensions of aid since 1976, with the exception of the 1980 rebound, reflect the country's apparent decision to minimize overseas expenditures.

Table 27

China: Economic Aid Extended to Foreign Free World Countries
(millions of US dollars)

Year	**Value**
1973	600
1974	282
1975	410
1976	181
1977	210
1978	219
1979	125
1980	402
1981	77
1982 (tentative)	41

The PRC's interest in the developing countries of Africa and Asia is an attempt to check the Soviet's drive for expansion, increase commercial markets, and gain multicountry support for international issues. As table 28 indicates, China's assistance to Africa in the last decade was some 65 percent of all its aid for LDCs. That assistance, however, has been decreasing in both the North African and Sub-Saharan sectors as aid to South Asia and the Middle East has correspondingly increased.

Table 28

China: Geographic Distribution of Economic Aid Extensions, 1973-82
(millions of US dollars)

	Amount of Aid Extensions			**Percent of Total**		
Region	**1973-82**	**1978-82**	**1982**	**1973-82**	**1978-82**	**1982**
North Africa	175	20	0	7	2	0
Sub-Saharan Africa	1,480	430	10	58	50	25
East Asia	90	65	0	4	8	0
Europe	0	0	0	0	0	0
Latin America	25	5	0	0	1	0
Middle East	200	125	0	8	14	0
South Asia	580	220	30	23	25	75
TOTAL	**2,550**	**865**	**40**	**100**	**100**	**100**

A closely related Chinese assistance activity is the number of economic technicians placed in host countries. Although there are domestic constraints, China increased its presence in less-developed countries last year, bringing the total back up to the 1978 level as shown in table 29. Part of the reason for this is that China is reimbursed for some construction workers. Although technician support is basically a commercial venture, the number of workers is included in the compilation of economic technicians.

Table 29

China: Economic Technicians in Foreign Free World Countries, 1973-82

Year	**Number of Technicians**
1973	23,000
1974	23,000
1975	25,000
1976	20,000
1977	24,000
1978	22,000
1979	13,000
1980	14,000
1981	17,000
1982	22,000

The geographic distribution shown in table 30 of Chinese economic technicians over the past decade shows a shift of emphasis from Africa to the Middle East. By comparison, the number of Soviet economic technicians is increasing in Africa and decreasing in the Middle East. While the total numbers of technicians did not change appreciably from the mid-1970s to 1982, they mask a 40-percent drop in the 1977 to 1981 period.

Table 30

China: Geographic Distribution of Economic Technicians, 1973-82

	Average Annual Number of Technicians to LDCs			**Percent of Total Technicians for Period**		
Region	**1973-82**	**1978-82**	**1982**	**1973-82**	**1978-82**	**1982**
North Africa	925	1,285	1,915	5	7	9
Sub-Saharan Africa	15,285	10,110	6,865	74	57	32
East Asia	120	175	275	-	1	1
Europe	155	125	280	1	1	1
Latin America	100	110	40	-	1	-
Middle East	2,990	4,805	11,090	15	27	51
South Asia	940	1,140	1,260	5	6	6
TOTAL	**20,515**	**17,750**	**21,725**	**100**	**100**	**100**

b. **Economic Assistance Received**

Throughout its history, China has had a cyclical pattern of involvement with the rest of the world. One explanation is that relations with the outside world are necessary for China to strengthen itself to resist foreign encroachment, while the other explanation is that political, economic, and cultural relations with foreigners contaminate society, disrupt the political order, and reduce China's independence and sovereignty.

The recent acceptance of foreign aid began with concessional, interest-free loans from Australia, Belgium, and Japan in 1979 for agricultural and civil engineering projects, capital goods purchases, and industrial equipment. These aid proposals were popular with donor nations because of their relatively small outlays and because they were potential facilitators to entry into the Chinese market. Early this year, China approached Japan with a much higher single loan proposal of some $5.6 billion to finance one-half the cost of 12 industrial projects, including double-tracking a section of their rail system, the construction of a hydroelectric power station, and the construction of an aluminum refinery. Although negotiations are continuing, Beijing believes multilateral assistance will be more important than that received bilaterally.

China extended its bilateral access to funds through membership in international development and financial organizations. Following admission to the United Nations in 1971, China stated that per-capita gross national product (GNP) was $450, which placed it as a donor nation to the United Nations Development Program (UNDP). In 1979 Beijing recognized its mistake and formally declared the "real" figure as $210 per capita GNP--one of the lowest in the world. As a result, China became a net recipient of UN aid and, according to the Chinese, through 1982 had received about $230 million from that organization to fund about 200 projects. More than 30 of the projects have been reportedly completed and have involved such diverse sectors as industry, agriculture, transport and communications, culture, education, public health, population, energy resources, scientific research, and child welfare. A specific example of this type of assistance was the set of computers purchased with an appropriation from the UN fund for population activities, which is being used to compile and analyze data from China's census of July 1982.

China's membership in the International Monetary Fund and World Bank in 1980 has already had a far-reaching impact on these organizations and on China's role in the world economy. Because the aggregate size of a member's economy determines its capital share, the PRC could eventually receive substantial assistance at a relatively low cost to China, but at a potentially high cost to other borrowers. Beginning in mid-1983, for example, China qualifies for a sizable amount of the recession-reduced lending pot of the World Bank's international development association affiliate that makes long-term, no-interest loans to poor countries. If China were to take complete advantage of these loans, less would be available for other developing countries and a political backlash from them would likely result.

Most recently, the World Bank agreed to provide a US $70 million loan to the Investment Bank of China to reloan to domestic enterprises for revamping small and medium-size factories. Other loans (to US $200 million) have been for higher education and engineering development to help alleviate their persistent shortage of trained manpower.

In June 1982, the Chinese Investment Promotion meeting sponsored by the Ministry Foreign Economic Relations and Trade and the United Nations Industrial Development Organization was held in Guangzhou. Over 400 businessmen and personnel in banking, industry, and commerce from 23 countries and regions participated in talks on 121 Chinese projects. Letters of intent for 70 projects were signed indicating that additional assistance will likely be forthcoming. The Beijing leadership clearly is attempting to avoid overcommitments and therefore will continue to be cautious while at the same time trying to obtain whatever practical at low cost.

c. China: Trade Relations

China's foreign trade has experienced dramatic changes in recent years, almost doubling from $20 billion to $38.2 billion between 1978 and 1980. It almost leveled off to only a 4-percent increase in 1981, and then almost reversed itself by falling 3 percent in 1982 as shown in table 31. Much of this dramatic increase in trade was attributed to China's 1978 and 1979 decentralization of the foreign trade apparatus by allowing local enterprises to engage in trade directly with foreigners. This unleashed a large demand for Western capital and consumer goods and provided incentives for locals to market abroad. Consequently, the government lost control over foreign exchange expenditures, hindering central formulation of trade plans and foreign exchange flows. The recourse taken was to require all Chinese organizations with deposits in foreign banks to remit those deposits to the Bank of China by March 1981. Perhaps even more important, however, was the dramatic shift from a small trade deficit in 1979-80 to a large trade surplus of $3.6 billion and $6.4 billion in 1981 and 1982, respectively. This new trade surplus, coupled with other hard-currency earnings from such sources as overseas remittances and tourism, enabled Beijing to plan for additional imports and development projects that only recently were prohibitive. Part of this new purchasing power could be felt in the national defense sector as funds become available for military and dual-use technology and equipment.

Table 31

Chinese Trade, 1978-82
(billions of US dollars)

	1978	1979	1980	1981	1982
Chinese Exports	10.1	13.5	18.9	21.6	22.4
Chinese Imports	10.3	14.4	19.3	18.0	16.0
Balance	-.2	-.9	-.4	3.6	6.4
Total Trade	**20.4**	**27.9**	**38.2**	**39.6**	**38.4**

The trade decline has been felt most by Communist countries, which have moved from a 15-percent share of the total China trade market in 1978 to a 7 percent share in 1982, with declines in both exports and imports. This shift is illustrated in table 32. DIA expects, however, that 1983 trade with East European countries and the USSR will rebound sharply if their new, larger trade agreements are fulfilled. Less developed countries (LDCs) have largely made up the share lost by the Communists during this 5-year period, as their market share has grown from less than one-third to 38 percent.

Table 32

China: Percent Share of Market with Trade Partners 1978-1982

Region	**1978**	**1979**	**1980**	**1981**	**1982**
Non-Communist Countries					
Developed Countries	54	57	57	58	55
(US)	(5)	(8)	(13)	(14)	(14)
Less-Developed Countries	31	30	33	36	38
Communist Countries	15	13	10	6	7

China's recent trade has emphasized light industrial items such as textiles, tires, hardware, and canned goods in return for raw and semifinished goods such as cotton and fruits. Table 33 shows the current commodity composition of Chinese trade for 1981, the last year complete data is available.

Table 33

China: Commodity Composition of Trade, 1981

Exports	**Percent**	**Imports**	**Percent**
Manufacturing	57	Industrial Supplies	52
Agriculture	24	Capital Goods	29
Extractive	19	Foodstuffs	16
		Consumer Durables	3
TOTAL EXPORTS	**100**	**TOTAL IMPORTS**	**100**

On a micro level, major 1981 exports and their percent of the total were: crude oil (15 percent), textile yarn and fabric (14 percent), clothing and footware (11 percent), chemicals (6 percent), metals and metal products (6 percent), petroleum products (6 percent), machinery and equipment (4 percent), other manufactured items (10 percent), animals, meat, and fish

(5 percent), and fruits and vegetables (5 percent). A detailed geographic distribution of the value of exports for 1978-82 is in table 34. Imports in 1981, on the other hand, were non-electromachinery (15 percent), grain (12 percent), chemicals (11 percent), textile fibers (11 percent), textile fabrics (9 percent), iron and steel (9 percent), transport equipment (5 percent), and electric machinery (6 percent). Similar to table 34, a detailed geographic distribution of import values for 1978-82 is in table 35.

d. **Foreign and Security Policies**

China seeks to become the predominant power in Asia, and ultimately a credible if not equal international competitor with the US and the Soviet Union. China now lacks the economic and military elements of national power to enable it to exert a major influence in international arenas. Instead, China relies heavily on a constantly dynamic foreign policy and diplomacy to safeguard and further its national interests vis-a-vis the superpowers. Security is foremost among those interests and forms the underpinnings of Beijing's progress toward modernization goals. Since 1982, Beijing's foreign policy has been significantly adjusted to downplay the visibility, if not the importance, of the US relationship and to portray itself as an independent power capable of dealing as an equal with both the US and the Soviet Union. This distancing from the US stems from Beijing's uncertainty over the degree and reliability of the US commitment to security cooperation and bilateral relations--difficulties over Taiwan and technology transfer issues are symptomatic. A Chinese perception that US rhetoric exceeds its resolve in dealing with Soviet aggressiveness--China advocates a much harder line--has undoubtedly also been factored into Beijing's calculation for initiating talks to ease tensions with the Soviet Union.

Table 34

China: Exports, By Area and Country
(billions of US dollars)

	1978	1979	1980	1981	1982
WORLD	10.1	13.5	18.9	21.5	22.4
Non-Communist	8.5	11.7	17.1	20.3	21.0
Developed	3.8	5.6	8.3	10.0	10.2
East Asia & Pacific	2.1	3.0	4.4	5.4	5.4
North America	.4	.7	1.2	2.1	2.4
US	.3	.6	1.1	1.9	2.3
Western Europe	1.3	1.9	2.7	2.6	2.3
Less Developed	4.8	6.1	8.8	10.3	10.8
Southeast Asia	3.2	4.3	6.3	7.3	7.8
South Asia	.2	.3	.3	.4	.3
Middle East	.6	.8	1.1	1.2	1.4
North Africa	.2	.2	.2	.2	.2
Sub-Saharan Africa	.5	.4	.5	.5	.5
Latin America	.1	.2	.5	.6	.6
Communist	1.6	1.7	1.9	1.2	1.4
USSR	.3	.2	.2	.1	.1
Eastern Europe	1.0	1.1	1.2	.7	.8
Other	.3	.4	.5	.4	.4

NOTE: Figures do not add due to rounding.

Table 35

China: Imports, By Area and Country
(billions of US dollars)

	1978	1979	1980	1981	1982
WORLD	10.3	14.4	19.3	18.0	16.0
Non-Communist	8.8	12.5	17.4	16.7	14.7
Developed	7.3	10.2	13.5	12.7	10.7
East Asia & Pacific	3.6	4.5	6.1	5.8	4.3
North America	1.3	2.2	4.5	4.4	3.9
US	.8	1.7	3.8	3.6	2.9
Western Europe	2.3	3.4	3.0	2.5	2.4
Less Developed	1.5	2.3	3.9	3.9	4.1
Southeast Asia	.4	.9	2.0	2.5	3.0
South Asia	.1	.1	.4	.4	.2
Middle East	.2	.2	.4	.2	.1
North Africa	.1	.1	.1	.1	.2
Sub-Saharan Africa	.2	.2	.2	.2	.1
Latin America	.6	.8	.7	.6	.4
Communist	1.5	1.9	1.9	1.3	1.3
USSR	.2	.3	.3	.1	.2
Eastern Europe	.9	1.2	1.2	.7	.7
Other	.3	.5	.4	.5	.4

NOTE: Figures do not add due to rounding.

China has renewed its Third World strategy as part of the effort to establish its credibility as an independent player with a constituency of developing nations which, collectively, and with China's assistance, can influence the superpowers. In reality, China has given up its pretensions to lead the Third World and has some commonality politically with such nations. As a major power Beijing will seek to maintain a pivotal role with respect to both superpowers in order to develop flexibility. Beijing will, however, continue to regard the Soviet Union as its greatest threat and likely will remain committed to its Western orientation and affiliations for security and modernization reasons.

Moreover, continued emphasis will be placed on acquiring Western technology and assistance for modernization. This will keep China tied to Western markets and generally disposed toward maintaining close relations with the US, Japan, and Europe.

The Sino-Soviet bilateral talks will continue because of the mutual desire to relax tensions. However, neither side has changed its fundamental perceptions of the other or its long-term goals. Beijing sees the Soviets as following a containment strategy employing military pressures and alliances designed to weaken China. Beijing's agreement to participate in "consultations" with Moscow and to permit a widening of bilateral contacts in selected areas is consistent with espousal of a more independent line toward the "two superpowers." This new approach is designed to demonstrate Beijing's ability to deal with the Soviets from a position of strength, deny Moscow the propaganda advantage of contrasting China's intransigence with Soviet "overtures," and complicate US planning with the possibility of a Sino-Soviet rapprochement.

DIA expects any movement toward Sino-Soviet normalization to be very slow, with step-by-step improvements contingent on reciprocal concessions from each side. Chinese conditions include diminished Soviet support to Hanoi and the early withdrawal of Soviet troops from Afghanistan, but DIA estimates no significant movement in these areas. A limited, mutual troop withdrawal along the common border and in Mongolia is a possibility, but not likely in the near term. Progress in economic and cultural relations will probably continue as low-cost, politically visible means of easing tensions.

10. CHINESE MILITARY ECONOMIC TRENDS

a. Military Expenditures

Annual budgetary allocations provide analytical insights into the priority for China's modernization of its military forces. The Chinese reveal very little useful military information in their official pronouncements. In 1979, China unveiled its national budget for the first time in 20 years and also provided an outline of spending for 1977 and 1978. These announced defense expenditures and those since then are shown in table 36 along with their proportion of the Chinese national budget.

Table 36

Announced Chinese Defense Spending, 1977-1983
(billions of yuan*)

Year	**Announced Defense Expenditures**	**Percentage of National Budget**
1977	14.9	17.7
1978	16.8	15.1
1979	22.3	17.5
1980	19.4	16.0
1981	16.8	15.1
1982	17.9	15.7
1983**	17.9	14.2

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*One yuan equals approximately US $.51.

**Planned.

The Chinese only provide a single figure for defense spending for each year, without elaborating on which programs have been funded and without defining the range of defense activities. Their figures clearly represent only a portion of total defense spending as it would be defined in the US budget, and appear to be analogous to the single-figure defense entry in the Soviet state budget which seriously understates actual defense spending.

DIA estimates of Chinese defense spending differ markedly from those reported for defense in the Chinese national budget. A building-block model incorporating direct-cost techniques suggests that the Chinese have understated total defense spending--as defined in US terms--by about half.

Table 37 is an index of estimated annual military spending. These outlays grew by over 50 percent between 1967 and 1971, apparently in response to growing tensions with the Soviet Union. However, a significant spending decline occurred between 1971 and 1973, which may have been associated with the Lin Biao episode and the warming of relations with the US. Spending rose between 1973 and 1975 as Deng Xiaoping used his influence to emphasize military modernization and enhanced training for the forces. However, with the purging of Deng, the Chinese leadership entered a period of indecisiveness, and military spending appeared to hit a plateau lasting through 1978. Military spending soared to its highest level in 1979 as the Chinese engaged Vietnam in a sudden and intense border war. But the war was of brief duration, and the military has been subjected to a very austere budget since that then.

Table 37

Estimated Chinese Defense Expenditures
(indexed to 1967 level)

Year	**Spending Level**	**Year**	**Spending Level**
1967	100	1976	144
1968	105	1977	142
1969	118	1978	144
1970	146	1979	164
1971	153	1980	148
1972	136	1981	139
1973	134	1982 (tentative)	143
1974	138		
1975	146		

Military spending in China is taking a much smaller share of the annual state budget than it did a decade earlier. Table 38 shows that between 1967 and 1971, defense procurement and industrial production both grew at about the same average rate. Since 1971, industrial production has more than doubled--driving GNP--while the estimated 1982 level of defense procurement showed a 25-percent decline. Thus, as China's GNP has been growing, the share allocated to the military each year has been proportionately declining. The implication of these estimates is that military modernization has been subordinated to development of China's economy since the 1971-72 period.

Barring an increased Soviet threat and a reprioritization of economic allocations, the military budget probably will continue to be limited by a policy of austerity. The national industrialization program will ultimately benefit the military, because greater capacity for providing China's weapon requirements will be attained.

b. Military Weapons and Equipment Production

(1) Introduction

China has produced military weapons and equipment for its armed forces at low levels for the last 5 years, and some production lines are active because of export orders. Some follow-on equipment of improved design is being produced, and other equipment is ready for serial production; however, these systems are still dated when compared to US and Soviet systems. The Chinese are continuing to strive for modernization of its armed forces, using indigenously produced equipment obtained from foreign technology rather than relying entirely on foreign hardware.

Table 38

Defense Procurement and Industrial Production
(indexed to 1967 levels)

Year	Defense Procurement	Industrial Production
1967	100	100
1968	97	109
1969	115	132
1970	166	156
1971	172	173
1972	120	191
1973	123	216
1974	132	225
1975	143	248
1976	138	248
1977	129	284
1978	130	322
1979	162	349
1980	135	380
1981	119	395
1982 (tentative)	129	411

Defense research and development organizations as well as the industrial ministries that produce military materiel have been reorganized to improve efficiency, to improve coordination, and in some cases to integrate civil and military production in order to increase flexibility, save resources, and raise efficiency.

(2) **Ground**

China produces over 35 ground force combat systems ranging from tanks to rifles. The more significant systems for the period 1978-82 is shown in table 39. The Chinese are producing two medium tank models that are evolutionary improvements of an older design, while development of an improved tank, two light tanks, and an armored personnel carrier (APC) continues. Towed artillery pieces similiar to Soviet models and self-propelled howitzers of domestic design are also produced. A continuing trend in artillery production is the emphasis on multiple rocket launchers that are mounted on trucks or APCs. China still produces moderate quantities of towed AAA guns in lieu of the mobile surface-to-air missile (SAM) systems adopted by most countries. Capabilities to produce more modern armor, radar, trucks, and artillery will increase because of aggressive acquisition of foreign technology. China's arms-export drive has resulted in the export of a significant portion of the army materiel produced in recent years.

Table 39

Ground Production, 1978-82

	1978	**1979**	**1980**	**1981**	**1982**
Medium and Main Battle Tanks	700	1,000	500	600	1,200
Light Tanks	100	100	100	100	100
Armored Personnel Carriers	100	200	500	500	500
SP Field Artillery (100-mm and up)	20	50	10	100	100
Towed Field Artillery (100-mm and up)	300	200	250	400	500
Towed Field Artillery (under 100-mm)	100	100	100	100	0
Artillery-type Rocket Launchers	400	450	450	450	450
Towed AA Artillery	1,900	2,100	2,000	1,500	1,500

(3) **Naval**

Construction of a variety of naval ships shown in table 40 continues but at rates considerably reduced from the immediate past. The Chinese cancellation of the contract with the UK to modernize two Chinese destroyers with modern missiles and electronics shows that China wishes to develop its own weapons using modern Western technology, not by purchasing Western hardware alone. Experiments with newly developed shipboard electronics and propulsion have been noted, but DIA expects that significant technological advances in naval ship designs and weapons will take considerable time.

Table 40

Naval Ship Production, 1978-82

	1978	1979	1980	1981	1982
Major Surface Combatants	2	6	4	2	1
Minor Surface Combatants	30	45	20	20	10
Naval Support Ships	0	0	5	0	0
Attack Submarines	5	5	5	5	3

(4) **Aircraft**

China continues to produce, at low rates, aircraft that are technologically inferior and obsolete when compared to their counterpart aircraft of both Soviet and Free World manufacture. During the past 5 years China has serially produced some 10 aircraft systems--2 bombers, 4 fighters, 3 transports, and 1 helicopter as shown in table 41. The three transports represent new production efforts, while one of the fighter programs represents a rejuvenated effort. The helicopter program has been terminated. The trend in fighter production will continue to dominate China's aircraft industry. The two fighters expected to dominate the aircraft industry throughout the 1980s and well into the 1990s are the F-7/FISHBED and the F-8/FINBACK. The future of China's aircraft industry as well as its ability to design indigenous, advanced, sophisticated aircraft will depend largely on the country's ability to obtain and assimilate the technologies available from both Communist and Free World manufacturers.

Table 41

Aircraft Production, 1978-82

	1978	1979	1980	1981	1982
Medium-Range Bombers	30	50	40	25	0
Intermediate-Range Bombers	5	5	5	5	5
Fighter/Fighter-Bombers	200	275	250	125	150
Military and Civil Helicopters	50	10	0	0	0
Military and Civil Transports	5	5	0	0	10

(5) **Missiles**

As shown in table 42 the Chinese produce a variety of missiles ranging from small antitank and air-to-air missiles to intercontinental ballistic missiles (ICBMs). Three kinds of ballistic missiles being produced include an intermediate-range ballistic missile (IRBM), ICBMs, and some models of a submarine-launched ballistic missile (SLBM), which is in a testing phase. DIA estimates current combined annual output for these programs will be about 40 missiles per year.

Table 42

Missile Production, 1978-82

	1978	1979	1980	1981	1982
ICBMs	10	10	10	10	10
IRBMs	20	20	20	20	20
SLBMs	0	0	0	5	10
Antiship Cruise Missiles	225	225	225	225	225
SAMs	100	100	100	100	100
Air-to-Air Missiles	400	1,000	1,200	1,200	1,200
Antitank Guided Missiles	300	500	2,000	3,000	4,000

Production of the PRC's antitank missile increased to about 4,000 last year, while the surface-to-air, air-to-air, and naval cruise missiles maintained their previous year's moderate production levels.

The Chinese have continued to develop the Long March 3 space launch vehicle (SLV). DIA expects this SLV, based on an existing ICBM, will be used to place geosynchronous satellites in orbit by the mid-1980s.

China will continue to lag behind the USSR in terms of quantities of missiles produced, and they will be also inferior in terms of quality and technological achievement in many areas. While the Chinese will undoubtedly attempt to incorporate newer technology into their missile programs, resulting in modified or new systems, the missiles will continue to be less sophisticated than those in the West.

(6) **Electronics**

China's electronics industry is one of the world's largest not only in terms of employees--over a million--but also in terms of the large number of factories (over 2,600). This rapidly progressing industry has a goal of achieving world standards by the year 2000. Today, however, poor quality control, lack of incentives, and somewhat obsolescent techniques have prevented China from competing internationally. However, much of the investment in this industry is aimed at capturing a future share of the world market in electronics. Foreign technology--mainly Japanese--is helping to modernize portions of the civilian sector of the industry, and this modernization will certainly benefit both civil and defense production.

c. **Military Aid**

The PRC has delivered $4.9 billion worth of military equipment to 53 countries since signing its first military assistance agreement in 1958. Approximately 60 percent of all PRC aid has gone to three countries: North Vietnam--$1.6 billion; Pakistan--$0.7 billion; and North Korea--$0.6 billion. All deliveries to North Vietnam were grant aid; close to 95 percent of the equipment was supplied from 1971 to 1975 in support of the Vietnamese war. No aid has been provided to Vietnam since the end of US involvement there.

PRC equipment deliveries reached a record high in 1982, totaling over $1 billion. Major recipients were Libya, Iraq, and North Korea. Since 1980, the value of equipment provided to the Middle East has increased considerably, due primarily to assistance to Iraq. Asian Communist countries also received substantial PRC aid. Table 43 shows a geographic distribution of military deliveries.

Table 43

Chinese Military Deliveries
(millions of US dollars)

	Asia and the Pacific	**Communist Countries**	**Middle East and North Africa**	**Sub-Saharan Africa**	**Total**
1958-1972	270	1,800	20	70	2,160
1973-1979	330	500	90	160	1,080
1980-1982	280	200	1,000	180	1,660
TOTAL	**880**	**2,500**	**1,110**	**410**	**4,900**

Grant aid has decreased substantially in recent years, accounting for only about $6 million of 1982 agreements. Military sales have become a significant foreign exchange source and will become even more important if they continue at high levels. Deliveries will continue their upward trend as China supplies outstanding equipment on order. The types and quantities of materiel delivered by Beijing during the 1978-82 period are shown in table 44.

Table 44

Major Items of Equipment Delivered, 1978-82

Ground	
Tanks	400
Field Artillery	2,000
Air Defense Artillery (20-mm and above)	2,400
APCs and Armored Cars	10
Naval	
Minor Surface Combatants	21
Submarines	2
Missile Attack Boats	8
Air	
Supersonic Combat Aircraft	340
Subsonic Combat Aircraft	5
Helicopters	5
Other Aircraft	100

d. Technology Acquisition

Even though national defense is stated as the lowest priority in the Chinese "Four Modernization" program, certain aspects of military advancement take a high precedence. Western technology imports to these sectors of the military can be of substantial assistance. For example, key military programs including nuclear missile development, targeting, and intelligence gathering are the most direct and immediate beneficiaries of advanced foreign technologies. Much foreign equipment and know-how is used to fill identified gaps and bottlenecks in these key programs. Because the best Chinese manpower and materiel support is directed toward these programs, they are far more capable of using advanced Western technologies than China's more general scientific programs in the civil sector. In improving selected operational capabilities, the filling of such gaps with appropriate foreign technologies has, therefore, saved the Chinese time, cost, and risk.

China's current emphasis on importing dual-use Western electronics, computer technology, and component production know-how and equipment, will lead additionally to more rapid progress in key areas. High-priority missile programs, for example, require sophisticated electronics for scientific calculations and onboard microprocessors for improved accuracy and reliability. China may acquire such dual-use technologies under civilian auspices and later adapt them to military applications, and vice-versa, or concurrently.

In addition, China's current acquisition of Western processing technologies and techniques, numerical control computers, calibration instrumentation, and other precision manufacturing equipment will improve gradually China's military-industrial infrastructure. Such technologies eventually will provide China the means for indigenous production of a broader range of more sophisticated strategic and conventional weaponry as well as strengthen the supporting industries.

11. CONCLUSION: PRC

The leadership in Beijing will continue their struggle to solve the economic problems of China. They recognize there is no simple, short-term solution to these complex difficulties and only a long run approach can be successful. Periods such as the Great Leap Forward, the Cultural Revolution, and the immediate post-Mao economic plan have all demonstrated the harsh reality that rapid, sustained growth cannot be accomplished by either clever slogans or good intentions. Even so, the most careful and pragmatic planning also will be less than totally successful.

Because the modernization growth strategy will require essential changes in the framework of the economy, it will be especially hard for the government to convince the people of the "correct" decisions. At times the changes considered vital by Beijing will be contrary to what the masses have traditionally deemed best. The population problem, for example, is an area where many people have the perceived need for several children as "old age insurance" while the government has the conflicting need to minimize increases to relieve pressure on resources. Management reforms and many other economic adjustments also cause similar incompatibilities. Therefore, fundamental problems such as poor transportation and insufficient energy production, which have been endemic throughout China's history, will not be "solvable" for many years even under the best of circumstances.

Rapid military modernization of China's large defense force would require sacrifices that neither the government nor the people are apparently willing to make at this stage of their history. Since Beijing feels that an attack by the Soviet Union or other adversary will be unlikely in the near future, an immediate enhancement of the military is, therefore, not urgently required. In the long run, however, as conditions change, the Chinese may feel growing pressures for a more modern military force.

The leadership expects that the current investment in infrastructure, basic industries, technology absorption capability, and personnel training will support defense modernization. Without a more firm foundation, any significant modernization of the military would drain away scarce financial, technical, and skilled manpower resources to the detriment of other sectors. For the Chinese, their decision will be to presently forego short-term modernization of all but the most important sectors of the military for long-run civil and military growth.

MARKET SOCIALISM

Senator PROXMIRE. Mr. Lungren.

Representative LUNGREN. You indicated that the decentralization or market socialism, as you call it, has been positive with respect to accelerated economic growth, which outstripped even your own predictions. Is there not, though, some resistance to this on the part of some of their leaders at the present time? Is there not somewhat of an ongoing debate within their top councils? How do you assess that debate? Do you think that it is going to substantially change the movement toward decentralization we have seen over the last couple of years?

General BISSELL. Let me take a first cut at that. I think there was a considerable amount of speculation that Premier Deng might not be able to effect this type of change because of the entrenched bureaucracy and the attitudes, and yet he has over time increasingly been supported and been able to implement this process.

I think there are still, though, factions that would oppose this and who are resistant to that. But I think he has had some successes, and that is what has probably allowed it to continue to move at this point.

Mr. MALLON. Thank you, General. You are quite right, sir. There has been resistance both at the very top level, from the so-called leftists, and there are still some in the various sectors of the national political structure and the party structure. However, Deng seems to have a very good control at this point. The latest National People's Congress, which just ended this last week, seemed to reinforce Deng's position. There is no indication now of any viable party struggle that will oust him or his policies from control.

In addition, there is resistance at the managerial level, both from a provincial and local city and enterprise level, for some of these changes. A very simple reason—these people have a vested interest in the current power situation; they are on top. If this is revised toward a more market socialist type of an economy, then they perhaps will lose out on their current power structure.

Representative **Lungren**. How far does this decentralization go? You mentioned that we have some heavy industry plants that are actually performing light industry functions but they are counted in that sector. Is that something that is now left to the manager of a plant? If he wishes to go to light industry, can he do that? Or is he somewhat confined to the definition of the facility to which he is assigned?

Mr. **Mallon**. Normally he does not have that decision to do that totally unilaterally. A lot of it depends on where the particular facility is located. If it is in a small, western town or in the central part of China, then they do not have quite the decision authority. In the area around Shanghai, although I would not want to term it autonomous, it is at the same time much more independent than other parts of China. The facilities there have much more leeway in what they produce. Again their goal is to maximize profit; it is not to produce *x* amount of whatever they were told to do.

FOREIGN AID

Representative **Lungren**. One of the displays that you showed would, in my judgment, probably bring tears of joy to the eyes of David Stockman, and that shows the tremendous decrease in foreign assistance that the People's Republic of China has brought about over the last couple of years. I think it was from 400 million down to 41 million or something like that.

Mr. **Mallon**. That is correct.

Representative **Lungren**. How much has that changed or, if it has at all, lessened the influence of the People's Republic of China in Third World countries?

Mr. **Mallon**. I would like to answer that in a rather complicated way. In the first sense, what we displayed was new extensions. In other words, these are new commitments by the People's Republic of China toward various Third World countries. At the same time that there has been a decrease in these outlays in terms of promises, there has been, shall we say, a relatively steady dispersal of aid. The problem is we do not have a good handle on this dispersal. It is very difficult to keep track of actual deliveries of grain, medical supplies, a road building crew, or something else that they promised 2 years ago or 5 years ago. It is almost impossible to determine whether this is actual aid or whether it is just part of their regular trade.

Representative **Lungren**. So what you are really suggesting to me is that this trend would be more pronounced as the promises that were not made become actual?

Mr. **Mallon**. In the future.

Representative **Lungren**. So if at all it is going to affect their influence on Third World countries, it should affect them in the upcoming years as opposed to the present; is that right?

Mr. **Mallon**. That is correct.

Also, I think it is very important to recognize that when we talk about aid there are different types of aid. One is a long-term, low-interest loan; another is a form of grant aid.

Representative **Lungren**. What is this when you say economic aid? Is this all types?

Mr. **Mallon**. No, this is mixed, but it is officially categorized by the Chinese and by the recipient countries and by us as aid. The difficulty is that at one point, say 10 years ago, most of Chinese aid was free. In other words, it was grant aid. Today very, very little of that is grant aid. It is more of a longer term loan, low-interest or no-interest.

Representative **Lungren**. They are moving more toward market socialism in that, too, I see.

Mr. **Mallon**. Yes, sir.

Senator **Proxmire**. Would Congressman Lungren yield for just a minute on that?

Representative **Lungren**. Yes.

Senator **Proxmire**. I think you also showed a chart indicating that their trade was substantial and far bigger than their aid. So their influence that way might be maintained fairly stable.

Mr. **Mallon**. Yes; that is correct.

Representative **Lungren**. Although you indicate they are running a surplus in that regard right now with trade, is that not right?

Senator **Proxmire**. It is roughly $25 billion compared to $50 million of aid.

Mr. **Mallon**. Aid is a very, very small part of the overall international financial picture.

TECHNOLOGY TRANSFER

Representative **Lungren**. It seems to me from your statements, General, that you suggest that the Chinese are not going to be able to modernize, either because of a decision they made or because of their situation, very rapidly, at least vis-a-vis the United States and the Soviet Union. Is it because of the fact that they do not appear to be either now or in the foreseeable future a major military power—and I mean that in the sense of the United States and the Soviet Union—that we are not as concerned about technology transfer? Is that part of the reason for our reluctance to publicize it? Would it be a reason for us not to be as concerned about technology transfer to the People's Republic of China as we are to the Soviet Union?

General **Bissell**. I think we see ourselves in a much more adversarial relationship with the Soviet Union across the spectrum and around the world than we currently do with the Chinese. I think we have come from a background where the Soviets and the Chinese once were considered a monolithic Communist bloc, and we have seen a separation from that, although at current times we see that there is some potential for an improvement in the overall relationship between the Soviets and the Chinese in their discussions of their border disputes.

So I think our concern is that, having once been viewed that way, we would rather not give any reason to disrupt that drift and try to keep them from working as part of a bloc.

Representative **Lungren**. Just one last question. You indicate that China has a long-range objective to quadruple its gross annual value of industrial and agricultural production by the year 2000. Is that based on overly optimistic projections, in your view? And what could we expect from now through the balance of the century? You have given us what you think is going to happen in the next couple of years. Can we project any further than that?

Mr. MALLON. The Chinese have indicated that they do want to quadruple the value of agricultural and industrial output value by the year 2000. That's based on the year 1981, which is the first year of the current 5-year plan. Such an expansion of quadrupling would require an annual average growth rate of about 7.2 percent. Historically they have been able to maintain almost that kind of a growth rate. The problem will be that as the economy develops the industrial base, the agricultural base, the overall economic base will become larger. It is harder and harder to grow at a faster rate or at even the same rate as the industrial base expands.

Representative LUNGREN. With a more mature economy it is more difficult to maintain that rate of growth that you have when you are really just coming from ground zero?

Mr. MALLON. That is correct.

In addition, the various parts of the economy that are very crucial to this growth, such as energy, will have to come on line fairly quickly to provide the base for this expansion into the 1990's. It is going to be very difficult to meet this quadrupling. As an aside perhaps, one of the factors is going to be the inflationary factor. If the Chinese simply say that the value of their industrial and agricultural output in 1981 was *x*, and then when they reach the year 2000 and they say it is now 4-*x*, it is very likely, understanding a little bit about the Chinese, that this will include the inflationary factor.

ECONOMIC GROWTH PROJECTION

Representative LUNGREN. You answered half the question. The other question was, Do you have any projection for what that rate of growth will be from now until the balance of the century?

Mr. MALLON. We would expect it to average slightly less than that. We would anticipate them at this point not being able to reach that goal of quadrupling.

Representative LUNGREN. Are you talking about 5 to 6 percent as opposed to 7½ percent?

Mr. MALLON. Approximately that. It is very difficult to make any projections.

Representative LUNGREN. Thank you.

Senator PROXMIRE. General and gentlemen, I want to thank you very, very much for an excellent presentation. In the past you have been very, very good about giving us the sanitized version promptly. We would appreciate it if you would do that again. We would like to get that because, as I indicated in my opening statement, it is very important that we make as much relevant information available to the public as we can both with respect to the Soviet Union and China.

General BISSELL. Thank you very much, Mr. Chairman. It is our pleasure to be here.

Senator PROXMIRE. Thank you. The subcommittee is adjourned.

[Whereupon, at 12:02 p.m., the subcommittee adjourned, subject to the call of the Chair.]

[The following additional written questions and answers were subsequently supplied for the record:]

RESPONSE OF GENERAL BISSELL TO ADDITIONAL WRITTEN QUESTIONS POSED BY SENATOR PROXMIRE

SOVIET DEFENSE SPENDING

Question. 1. Were the growth rates of Soviet total defense spending and military procurement, calculated in current rubles, slower in 1977-81 than in the prior five years? Provide a table showing the growth rates for each year since 1970.

Answer. There was no decline in the growth rates of total Soviet defense spending during 1977 to 1981 compared to the previous five year period. DIA estimates that Soviet total defense spending in current rubles maintained an average annual 7 percent rate of growth throughout the 1970s. There has been a decline, however, in the growth rates of Soviet military procurement from the ranges of 9-11 percent in 1970 to 1975 to about 6-9 percent in 1975 to 1980. DIA's estimating methodology is most useful in analysis of long range periods or in analysis of a single year. Due to its inherent range of error, DIA's methodology is not capable of accurately measuring fluctuations in total Soviet military expenditures or in defense procurement and thus yearly rates of growth cannot be provided.

SOVIET DEFENSE SECTOR

Question. 2. What is the basis for your conclusion that the defense sector grew faster than the rest of the economy in the decade of the 1970's?

Answer. Soviet national income or Western estimates of Soviet GNP when denominated in current prices grew at an average annual rate of 5 percent during the 1970s. DIA estimates that in current prices Soviet military spending rose at an average annual rate of 7 percent during this period. This resulted in an increase in the Soviet defense burden from a range of 12-14 percent of GNP in 1970 to a range of 14-16 percent in 1981. [Security deletion.]

SOVIET DEFENSE SPENDING AND PROCUREMENT

Question. 3. Do you agree that the rate of growth of Soviet total defense and military procurement costs appear to have slowed down in 1976-81, whether calculated in current rubles or constant dollars? How do you explain the fact that the slowdown in Soviet defense and military procurement appears greater when calculated in constant dollars than in current rubles?

Answer. [Security deletion.]

It must be remembered that the constant dollar cost and current ruble estimate are different methodologies and have entirely different purposes. The dollar estimate is designed to cost Soviet military activities using US prices, technology and learning curves (experience) in order to make comparisons with US defense forces. Dollar cost estimates do not measure actual Soviet defense spending, the impact of defense on the economy, the Soviet perception of defense activities or manufacturing efficiencies in Soviet military industries. The current ruble estimate is designed to measure what the Soviets actually spend on defense using Soviet current prices and technology.

ESTIMATING SOVIET SPENDING

Question. 4. Explain the methodology used by DIA to estimate Soviet GNP, defense, and military procurement in current rubles.

Answer. DIA estimates of Soviet GNP in current prices are based on published Soviet national income statistics which are adjusted to be compatible with the definition of GNP. National income is the Soviet measure of the economic output of the USSR gross national product—minus services (such as education and health) and depreciation. DIA uses Soviet statistics to calculate values for these other activities which are not included in Soviet national income and adds them to construct an estimate of Soviet GNP.

DIA's current ruble defense expenditure estimate is based on several statements made by knowledgeable Soviet sources concerning the level of Soviet defense spending during the late 1960s and early 1970s. At that time, the share of the state budget devoted to defense—according to those sources—was about 31-34 percent. DIA believes that defense has taken approximately the same share of the rapidly growing state budget in later years as it did in the early 1970s. Analysis of the state budget and other national accounts shows no civilian components that could account for the rapid growth in the budget other than defense. [Security deletion.]

SOVIET STATE BUDGET

Question. 5. Is it assumed in DIA's methodology for estimating Soviet defense costs in current rubles that the structure of the state budget remained the same throughout the 1970's? If so, what is the basis for these assumptions? If not, what was the assumption about the state budget?

Answer. The Soviets have published a fairly detailed breakout of their state budget expenditures for each year since 1970. The structure of the expenditure side of the Soviet state budget has remained fairly constant over this time period. In fact, the most significant changes are the ever-increasing secrecy with matters concerning the state budget and the rapid growth of large unidentified components within the state budget. [Security deletion.]

SOVIET INFLATION

Question. 6. What is your estimate for inflation in the Soviet economy and in the defense sector during the 1970's? Was inflation higher for defense than in the rest of the economy? Did the inflation rate change during the decade?

Answer. DIA believes that there has been moderate inflation in the USSR since 1970—perhaps on the order of 2 to 3 percent annually—and that was slightly higher later in the decade. DIA also believes it possible that inflation was higher in the defense sector than the rest of the economy. [Security deletion.]

DEFENSE SHARE OF THE SOVIET BUDGET

Question. 7. What level of confidence do you attach to the hypothesis that defense absorbed a constant share of the state budget since 1970? Discuss the evidence that substantiates the hypothesis.

Answer. In the early 1970s [security deletion].

ESTIMATING METHODOLOGIES

Question 8. Discuss the relative advantages of the methodologies used by the DIA and CIA for estimating current ruble expenditures and dollar costs of Soviet defense and military procurement with respect to technological advances and other factors that increase costs.

Answer. DIA ruble estimates are based on a combination of [security deletion] Soviet statements about defense spending and published Soviet statistics. It uses a possible broader definition of defense than the one used by CIA and is in current established prices. DIA believes that this approach comes closest to reflecting the Soviet perspective of its own resource commitment to defense. This approach, in theory, captures some additional costs due to Soviet production inefficiencies and changing USSR resource scarcities if these are reflected in Soviet statistics. [Security deletion.]

Both DIA and CIA methodological approaches include cost changes associated with more complex weapon technologies in the pricing of individual weapon systems. DIA believes, however, the use of Soviet-based statistics, rather than factor costs, may capture to a greater extent Soviet costs due to increasing technological complexity.

The dollar estimates reflect what it would cost in the US to duplicate Soviet weapons programs. The dollar estimates, therefore, do not at all reflect cost increases experienced in the USSR. The dollar costs do provide a measure of real changes in Soviet defense resource allocations that can be compared with US defense funds.

TECHNOLOGY COSTS AND DEFENSE

Question 9. The direct cost methodology used for estimating Soviet defense and procurement costs in constant dollars has been criticized for not adequately capturing cost increases due to advances in technology. Do you agree with this criticism? If so, please substantiate it.

Answer. The current direct costing methodology attempts to capture cost increases due to advances in weapon technology. We are not able to quantitatively assess the adequacy of the increases, however. Based on some preliminary work at DIA, and work done by the Systems Planning Corporation (SPC) on costs of successive generations of U.S. aircraft, we believe more analytical attention is needed on this issue. Most of our concern, however, pertains to the adequacy of the ruble-dollar methodology to capture increasing Soviet ruble costs of producing advanced technology military equipment.

SOVIET DEFENSE BURDEN

Question 10. State whether the Soviet defense burden has increased since 1976 and provide a table showing the defense burden for each year since 1970.

Answer. The Soviet defense burden has increased from about 13 to 15 percent of GNP in 1976 to about 14 to 16 percent in 1981. The nature of our estimate does not allow a detailed calculation of the Soviet defense burden for each year from 1970-81 since we have only calculated a detailed estimate of Soviet current price GNP for 1970 and 1980. The table below, however, provides a rough estimate for the Soviet defense burden from 1970 to 1981.

Soviet defense burden 1970-81

[Percent of estimated Soviet GNP]

1970-1973	12-14
1974-1978	13-15
1979-1981	14-16

DOLLAR COST OF SOVIET WEAPONS

Question 11. Does the DIA estimate the annual costs of military production on a weapon-by-weapon basis? If so, provide the cost estimates for the weapons listed in tables 2-4 in your written statement.

Answer. Yes. The DIA generates dollar cost estimates of Soviet military production [security deletion]. It is not possible, however, to provide the dollar costs of the individual weapon systems listed in tables 2-4 [security deletion].

SOVIET WEAPONS PRODUCTION

Question 12. Provide a table showing annual weapons production excluding weapons transferred to other countries for the weapons listed in tables 2-4.

Answer.

TABLE 2.—SOVIET MILITARY PROCUREMENT (1978-82)

Equipment type	1978	1979	1980	1981	1982
Infantry combat vehicles	2,250	1,500	2,500	2,600	2,500
Towed artillery	400	500	400	800	1,300
SRBMs	250	300	300	300	300
Antiship cruise missiles	750	550	825	850	850
Antitank guided missiles*	35,000	40,000	45,000	60,000	62,000
Artillery-type rocket launchers	330	350	500	670	500

*Very little data is available on exports or specific quantities exported. Therefore total output is shown.

TABLE 3.—SOVIET MILITARY PROCUREMENT (1978-82)

Equipment type	1978	1979	1980	1981	1982
Minor surface combatants	30	30	35	25	30
Naval support ships*	15	10	10	10	5
Long-range bombers	30	30	30	30	30
ASW aircraft	10	10	10	10	10
Combat-capable trainers*	80	80	30	40	50
Helicopters*	590	530	655	655	625
SAMs**	53,000	53,000	53,000	53,000	53,000
Ballistic missile submarines	2	2	2	2	1

*Includes equipment produced in NSWP countries for the USSR.
**Very limited data is available on exports or specific quantities exported. Therefore total output is shown.

TABLE 4.—SOVIET MILITARY PROCUREMENT (1978–82)

Equipment type	1978	1979	1980	1981	1982
Tanks	2,500	2,900	2,700	1,200	2,100
APCs*	1,300	1,800	1,800	1,000	600
Armored recon vehicles	800	1,000	1,000	900	600
Self-propelled artillery	620	175	180	350	600
Major surface combatants	10	9	9	7	7
Attack submarines	10	9	10	8	6
Fighter/fighter-bombers	900	825	850	750	550
Transports	350	350	325	250	250
ICBMs	225	225	250	200	175
SLBMs	250	200	200	175	175
Military ground-based radars	850	750	650	750	500

*Includes equipment produced in NSWP for the USSR.

SOVIET GNP

Question 13. How do you define Soviet GNP, and how does your definition and methodology for estimating GNP differ from the CIA's? Provide a table showing the GNP growth rates for each year since 1970.

Answer. DIA defines Soviet GNP as the total value of goods and services produced by the Soviet Union in a year. While DIAs and CIAs definition of Soviet GNP is the same, there are differences in methodology. DIA's estimates Soviet GNP by use of current, establishment prices because DIA uses Soviet GNP estimates to calculate current military burden. Military burdens are best calculated by using military spending and economic output estimates denominated in current prices. DIA's Soviet GNP estimates are based on Soviet national income statistics which are adjusted to be compatible with the definition of GNP. CIA estimates Soviet GNP for a variety of reasons and thus has primarily developed factor cost, constant ruble Soviet GNP estimates. (For a detailed explanation of CIA's methodology for estimating Soviet GNP, see JEC, *USSR: Measures of Economic Growth and Development, 1950–80*, 1982.

Recently, however, CIA has developed a current ruble, establishment price estimate of Soviet GNP for 1980. As the table shows, DIA's and CIA's estimates are compatible and well within a reasonable range of error.

SOVIET GNP CURRENT RUBLE—ESTABLISHMENT PRICE

	1970	1980
DIA	387	625
CIA	383	636

DIA has only constructed a detailed estimate of Soviet GNP in current establishment prices for 1970 and 1980. Soviet current national income growth rates are a close proxy and are provided below:

1971	5.1
1972	3.6
1973	7.7
1974	4.1
1975	4.2
1976	5.5
1977	4.3
1978	5.3
1979	2.9
1980	4.9
1981	4.4

SOVIET FOOD SHORTAGES

Question 14. What is the basis for the statement on p. 42 of your written statement that "limits in grain imports have been felt in cutbacks in the availability of meat and dairy products for the average consumer"? Discuss any civil disturbances over food shortages that have occurred in the past two years.

Answer. Coincident with the four consecutive poor crop years in the USSR there was a sharp deterioration in food supplies. These shortages have been most evident in meat and dairy products, sugar, and coffee. Potato and grain products have been generally available, however, erratic distribution has sometimes caused serious shortages of even these basic items. Record levels of food and grain imports helped offset these shortages but were not able to compensate for domestic shortfalls. [Security deletion.]

SOVIET WORKER PRODUCTIVITY

Question 15. What is the basis for the conclusion on pp. 53–54 of your written statement that worker productivity on private plots is substantially higher than in the collectivized sector of agriculture? In calculating productivity, do you fully take into account direct and indirect subsidies provided to private plots?

Answer. According to published Soviet data, private plots produce 25 percent of the country's gross agricultural production even though they only utilize 3 percent of cultivated land. Statistics on private plot yields show that they account for about the following percentages of total output: potatoes 60 percent, vegetables 30 percent, meat 30 percent, milk 30 percent, and eggs 33 percent. State farms cultivate vast areas, and consume far more feed, fertilizers, and capital equipment per unit of output than do private farmers. Because of the far higher productivity of private plots from low investment, the State provides feeds, grazing areas, fertilizer, transport, and other support at reasonable prices or at no cost. In calculating productivity it is not possible to take these factors and other possible indirect subsidies into account.

RESPONSE OF GENERAL BISSELL TO ADDITIONAL WRITTEN QUESTIONS POSED BY SENATOR D'AMATO

IOC OF NEW SYSTEMS

Question 1. Please provide the Committee with a chart showing the initial operational capability dates (IOC's) of the major new Soviet weapons systems introduced during the period from 1970 to the present and the IOC dates of major modifications to Soviet weapons systems during this period.

Answer.

AIRCRAFT

FIGHTERS

	IOC
Fencer:	
A	
B	[Security deletion.]
C	
Fiddler C	
Firebar B	
Fishbed:	
K	
L	1971
N	1972
Fitter:	1973
B	
C	1970
D	1973
E	[Security deletion.]
F	
G	
H	
J	
K	
Flagon:	
C	
D	[Security deletion.]
E	
F	
G	
Flogger:	
B	
D	[Security deletion.]
E	
F	
G	
H	
J	
Forger A	
Foxbat:	1976
A	
B	[Security deletion.]
C	
D	
E	
Foxhound A	
Frogfoot A	

BOMBERS

Backfire:	
B	
C	[Security deletion.]
Badger:	
C MOD	
G MOD	
K	
Bear:	
F	
G	
Brewer E	
	1970

TRANSPORTS

Candid:	
A (IL-76)	
(IL-76T)	[Security deletion.]
B (IL-76M)	
Cock B	
Coot A	
Cub:	
B	
C	
D	

SUPPORT

Moss AWACS	[Security deletion.]

HELICOPTERS

MI-24:	
Hind A	
Hind D	[Security deletion.]
Hind E	
MI-14 Haze	
MI-26 Halo	
MI-8:	
Hip E	
Hip G	
Hip H	
Hip J/K	
Ka-27 Helix A	
[Security deletion.]	

MISSILES

Air-to-surface

AS-6	
AS-4c	[Security deletion.]

Air-to-air

AA-6 MOD	
AA-7c	[Security deletion.]
AA-9	

Tactical air-to-surface

AS-9	
AS-10	[Security deletion.]
AS-11	
AS-14	

Sea-launched cruise and ASW

SS-N-2c	
SS-N-3b MOD 2	1973-1975
SS-N-9	1976
SS-N-12	1971
SS-N-14	1976
SS-N-15	1973
SS-N-16	1973
SS-N-19	1980
SS-N-22	1981
SSC-3	1982
	1981-1982

Surface-to-air (strategic)

ABM-1B	
SA-10	[Security deletion.]
Ground based ASAT	

Surface-to-air (tactical)

SA-6	[Security deletions.]
SA-8	
SA-11	
SA-13	
SA-14	

Surface-to-air (naval)

SA-N-4	[Security deletions.]
SA-N-5	
SA-N-6	
SA-N-7	

Anti tank

AT-4	1973
AT-5	1974
AT-6	1974
AT-7	[Security deletions.]
AT-8	

Surface-to-surface

SRBMs:	
SS-21	[Security deletions.]
SS-22	
SS-23	
IRBM's:	
SS-20	[Security deletions.]
SS-11:	
Mod 2	[Security deletions.]
Mod 3	
SS-13 Mod 2	
SS-17:	
Mod 1	
Mod 2	
Mod 3	
SS-18:	
Mod 1	
Mod 2	
Mod 3	
Mod 4	
SS-19:	
Mod 1	
Mod 2	
Mod 3	
SLBMs:	
SS-N-6:	
Mod 2	[Security deletions.]
Mod 3	
SS-N-8:	
Mod 1	
Mod 2	
SS-N-18:	
Mod 1	
Mod 2	
Mod 3	
SS-NX-20	

NAVAL SYSTEMS

Ships (new classes)

KRYVAK I frigate	1970
KRESTA II cruiser	1970
MOD SVERDLOV cruiser	1971
MOD KASMIN destroyer	1972
KARA cruiser	1972
KRIVAK II frigate	1975
KIEV carrier	1976
IVAN ROGOV amphibian	1978
UDALOY destroyer	1981
SOVREMENNYY destroyer	1981
KIROV cruiser	1981
KRASINA cruiser	1983

Submarines/SLBM

SSBN's:	
DELTA I/II/SS-N-8	1973
DELTA III/SS-N-18	1978
YANKEE II/SS-N-17*	1978
TYPHOON/SS-NX-20	1983
SSGN:	
CHARLIE II/SS-N-9	1974
PAPA/SS-N-9*	1975
OSCAR/SS-N-19	1981
ECHO II(conv./SS-N-12	1978
SSN:	
VICTOR II	1973
ALFA	1978
VICTOR III	1979
SS:	
TANGO	1973
KILO	1980

*One of a kind. No series production.

GROUND SYSTEMS

Tanks

T-72	[Security deletions.]
M-1981/1 (T-64 Variant)	
T-1980	

INFANTRY FIGHTING VEHICLES

BMP M 1981	[Security deletions.]

FIELD ARTILLERY CANNON

122 mm 251	[Security deletions.]
152 mm 253	
203 mm M1975	
240 mm M1975	
152 mm M1976	
152 mm 255	
122 mm M1981	

FIELD ARTILLERY ROCKET LAUNCHERS

122 mm M1975	[Security deletions.]
122 mm M1977	
220 mm BM27	

AIR DEFENSE GUN

23 mm ZSU-23	[Security deletions.]

SPACE SYSTEMS

[Security deletion.]

UNIT COSTS

Question 2. Please provide estimated unit costs for the systems identified for Question 1 above in both dollars and rubles.

Answer. The estimated unit costs for those systems identified in Question 1 can be released only by CIA. These costs, however, are used by DIA in deriving estimates of the total costs of the Soviet defense activities.

SOVIET QUALITATIVE CHANGE

Question 3. Please provide a summary narrative description of the most important qualitative changes and the military significance of these changes to the systems identified in your response to Question 1 above, as compared to the systems they replaced in the Soviet inventory.

Answer.

AIRCRAFT

Fighters

The Soviets have shown steady, evolutionary progress in the development and deployment of fighter weapon systems. In most cases, new fighters have been added to the force rather than replacing older aircraft. [Security deletion.]

The most significant, qualitative improvements in fighter aircraft have been the following:

a. Fitter was designed for use in the ground attack role. Although Fitter performance is generally not as good as the ground attack versions of Flogger (which was deployed a few years after Fitter), there have been many variants of the Fitter built. [Security deletion.]

b. Flogger has been produced in both interceptor and ground attack versions. Both versions have significantly improved Soviet capabilities. [Security deletion.] Later versions of the Flogger have a limited look-down shoot-down capability. The ground attack version of Flogger (Flogger D) was such a radical change that it was given a separate designator (MIG-27) by the Soviets. At the time of its introduction, this aircraft was capable of carrying a greater bomb load farther than any existing fighter. [Security deletion.]

c. Foxbat A is an air interceptor capable of higher speeds and altitudes than any other Soviet fighter. [Security deletion.]

d. Foxhound [security deletion].

e. Fencer is a two place twin engine attack aircraft with [security deletion] greater distances than had been achieved previously. [Security deletion.] The Fencer, with its all-weather, low-altitude penetration capability, provides the Soviets with a deep strike/interdiction capability.

f. Forger is the Soviet's first vertical and short takeoff and landing (VTOL) aircraft. Although it has limited capability, it has provided the Soviets their first fixed-wing sea power.

Bombers

a. Backfire B has increased range and [security deletion] capabilities over Badger and Blinder [security deletion].

b. Backfire C is a modified Backfire B [security deletion].

c. Badger C mod is a Badger C modified [security deletion].

d. Badger G mod is a Badger G modified [security deletion].

e. Badger K is a dedicated Elint reconnaissance aircraft with an improved Elint collection capability over the Badger F photo/Elint reconnaissance aircraft.

f. Bear F [security deletion].

g. Bear G [security deletion].

h. Brewer E, a modified Brewer C, was the Soviet's first dedicated tactical ECM aircraft [security deletion].

[Security deletion.]

Transports

a. Candid A (IL-76) was the Soviet's first jet-powered military logistic transport. The aircraft resembles the U.S. C-141A in configuration and has greatly increased range/payload performance over the Cub (AN-12). The IL-76T has a larger fuel capacity than the IL-76 and thus has better range/payload performance.

b. Candid B [security deletion] is a modified Candid A [security deletion] equippped with a tail gun [security deletion].

c. Cock B is a modified cock A [security deletion].

d. Coot A [security deletion].

e. Cub B is a modified Cub (AN-12A) [security deletion].

f. Cub C and Cub D are modified CUBs (AN-12Bs) [security deletion].

g. Moss is a modified Cleat commercial passenger aircraft and is the Soviet's first Airborne Warning and Control System (AWACS). [security deletion].

Helicopters

a. The MI-24 Hind A became operational in [security deletion]. It was the first Soviet armed helicopter and establishes world helo speed records. [Security deletion]. Armament includes 57mm rockets. ATBMs, bombs, and a multi-barrel 12.7mm turreted nosegun.

b. The MI-14 Haze is a land-based ASW capable helicopter.

c. The MI-26 Halo is the world's largest transport helicopter capable of carrying internally two airborne infantry combat vehicles or about 100 combat-loaded troops.

d. The MI-8 HIP is the world's most heavily armed for support helicopter. It can be armed with 57mm rockets. ATGMs, bombs and a 12.7mm single barrel gun. [Security deletion.]

e. The Ka 27 HELIX A [security deletion].

f. The [security deletion].

MISSILES

Air-to-surface

a. The AS-4c [security deletion].

b. The AS-6 [security deletion].

Air-to-air

a. The AA-6c [security deletion].

b. The AA-7c [security deletion].

c. The AA-9 [security deletion].

Tactical air-to-surface

a. The AS-9 [security deletion].

[Security deletion].

b. The AS-10 [security deletion].

c. The AS-11 [security deletion].

d. The AS-14 [security deletion].

Sea-launched cruise/ASW

a. The SS-N-2c represents a major redesign of the internal configuration of the SS-N-2a/2b [security deletion].

b. The SS-N-3b Mod 2 missile is an improved SS-N-3b Mod 1 missile. [Security deletion].

c. [Security deletion].

d. The SS-N-12 [security deletion].

e. The Soviets [security deletion].

[Security deletion].

f. The SS-N-14 [security deletion].

g. The SS-N-15 [security deletion].

h. The SS-N-16 [security deletion].

i. The SS-N-19 [security deletion].

j. The SS-N-22 is the newest antiship missile deployed by the Soviets. [Security deletion].

k. The SSC-3 [security deletion].

Surface-to-air (strategic)

a. The ABM-1B system was deployed in 4 locations around the periphery of Moscow to provide limited defense of U.S. ballistic missiles. It was the first ABM system ever deployed.

b. The SA-10 surface-to-air missile system [security deletion].

c. [Security deletion].

[Security deletion.]

Surface-to-air (tactical)

The Soviets have developed a massive layered air defense for their ground forces to provide air superiority over the battlefield. The SA-6 is a low-to-medium altitude SAM with an assessed range of 30km. [Security deletion] a modified SA-6 with a more effective missile with double the firepower was deployed. The SA-3 is intended for low altitude defense with a range of 10-15km. [Security deletion.]

Surface-to-air (naval)

The surface-to-air missile has also evolved as a critical weapon system for air defense of Soviet naval combatants. Since the deployment of the SA-N-4, [security deletion]. Soviet surface ships have incorporated very capable SAM defensive systems. [Security deletion.]

Anti-tank guided missile

The AT-4 ATGM [security deletion].

Surface-to-surface

a. The introduction of the fourth generation ICBMs (SS-17, SS-18 and SS-19) provided a major qualitative upgrade to the Soviet ICBM force. Unlike any previous Soviet systems, these ICBMs use [security deletion] multiple independently targetable reentry vehicles (MIRVs). Whereas the older systems (and their modifications) have CEPs [security deletion] and up to 10 MIRVs per missile, thereby placing the US MINUTEMAN Force at risk. The SS-X-24 and SS-X-25, now in flight testing, demonstrate increased Soviet interest in solid-propellent missiles. Although the solid-propellant SS-13 is deployed, the SS-X-24 has a much greater payload [security deletion]. The smaller SS-X-25 is expected to be deployed [security deletion]. The solid-propellant SS-20 IRBM provides a MIRV capability (3RVs) from a mobile missile transporter-launcher capable of striking targets anywhere in Europe and Asia. Also, the reaction time of the SS-20 is improved over the SS-4 and SS-5 missiles it replaces. The operating experience with the SS-20 IRBM is probably transferable to the new small ICBM.

b. In the SLBM area, the SS-N-18 also provides a MIRV capability [security deletion].

c. The newest short-range ballistic missiles (SRBMs), the SS-21, SS-22 and SS-23, have improved accuracy relative to the older FROG, SS-12 and SCUD missiles they replace. [Security deletion.]

NAVAL SYSTEMS

Ships

Since 1970, the Soviets have introduced ten new classes of major surface combatants and amphibious ships (i.e., over 3,500 tons displacement) and major upgrade programs for two existent classes. The largest of these, the Kiev class CVHG, introduced in 1976, marks the second generation of Soviet aviation ships. The Soviets now have, in addition to sea-based helicopters, a subsonic, fixed-wing fighter-bomber aircraft, designated the Forger, which operates from the Kiev class carriers. The primary role of the VSTOL capable Forger is surface attack. Other possible roles include ground force support, air defense, and reconnaissance. Additional KIEV advancements over the preceeding MOSKVA class helicopter cruises included the addition of the long-range SS-N-12 antiship missile system and enhanced communications capabilities enabling the KIEVs to function as major command and control ships.

a. The Kirov class, introduced in 1981, is the Soviet's first nuclear-powered surface combatant. At 28,000 tons full load displacement, it is the second largest surface combatant in the Soviet Navy and the largest nuclear cruiser in the world. The KIROV is armed with four missile systems, two of which are new. For the first time, the Soviets have deployed a phased-array radar system which functions as the fire control radar for the long-range vertical-launch (another first) surface-to-air missile, the SA-N-6. The Kirov class, which will number at least two units, adds new capabilities to the Soviet Fleet in addition to potentially reducing reliance on all gun equipped Sverdlov class cruisers and naval auxiliaries as flagships.

b. The Krasina class guided missile cruiser, introduced in 1983, is apparently a replacement for the small KYNDA Class guided missile cruiser of the early 1960's, and, as such, is fitted with longer range antiship missiles and has heavy emphasis on air defense.

c. Two new guided missile destroyer classes, introduced in 1981, are apparently intended to replace large numbers of all-gun-armed Skoryy and Kotlin class destroyers built in the 1950's. The new Sovremennyy class emphasizes surface warfare with a potent battery of antiship cruise missiles and heavy gun armament, while the new Udaloy class is specialized for antisubmarine warfare (ASW) with ASW missiles and two onboard ASW helicopters. Sophisticated air defense systems, involving new missile systems and high rate of fire 30mm gatling guns (four per ship), are fitted to both classes.

d. The Krivak I class guided missile frigate, introduced in 1970, and the "up-gunned", but otherwise identical Krivak II class of 1975, are primarily configured for ASW. The units are now functionally replacing the all-gun-armed Riga class frigates built in the 1950's. Compared to its predecessor, Krivak has more powerful submarine locating equipment (including a towed variable depth sonar), a stand-off ASW missile, and better air defense capabilities based on a point defense missile.

e. The lead Ivan Rogov class land ship introduced in 1978 was the world's first amphibious assault ship to carry air cushion vehicles as a primary method of troop delivery. Accordingly, rather than replacing existent units, the Rogovs added a new dimension to Soviet naval operating capability. It would appear likely that the two unit class will be succeeded by larger landing ship classes equipped with cushion vehicles and/or assault helicopters, although no such follow-on has yet been identified.

f. Two limited warship modification programs were initiated and completed during the 1970's. Two former all gun Sverdlov class cruisers were converted into command ships with enhanced helicopter and air defense capabilities, while six of 19 Kashin class guided missile destroyers (IOC 1963) received ASW enhancements and were fitted with antiship cruise missiles.

Submarines

a. SSBN. The Delta I/II/SS-N-8 introduced the long range SLBM (7,800 to 9,100km) to the Soviet Fleet. This improvement in range of SLBMs from a previous maximum of 3,000km permitted Soviet SSBNs to be within range of most U.S. targets without leaving home waters and certainly without the forward deployment required for the Yankee I, Hotel and Golf classes. The Delta III-SS-N-18 program introduced the MIRV (3-7 warheads) to the Soviet SLBM with a slight reduction in range (6,500km). The Typhoon/SS-NX-20 program increased the number of missiles carried to 20, the MIRV load to 6-9 warheads and missile range to 8,300km. As Delta IIIs and Typhoons have been added to the fleet some Yankee Is, Hotel IIs and Golf SSGs have been dismantled to compensate for the number of new launch tubes as agreed to under SALT I; however, total number of RVs and range of missiles have greatly increased.

b. SSGN. The Charlie II/SS-N-9 program introduced the somewhat longer range (about 130km) anti-ship cruise missile to complement the 65km SS-N-7 carried by the Charlie I. The introduction of the Oscar class triples the number of missiles carried per submarine from 8 to 24 and adds new long range (500km) cruise missile. It will probably replace some of the older Echo II Class boats, which carry the 550km SS-N-3s.

c. SSN and SS. The Victor II is a slightly enlarged Victor I Class believed capable of firing an ASW missile system. The Alfa class has a titanium hull and a significantly increased diving depth capability. It is also the world's fastest submarine at 40+ knots. The Victor III class is fitted with a towed array ASW sensor, the first such system for the Soviets. The Tango and Kilo classes are advanced design, long range, diesel, attack submarines probably intended to replace in part the aging Foxtrot and Whiskey class SSs.

GROUND SYSTEMS

Tanks

The T-72 introduced a laser range finder to improve first round hit capability. It also possesses improvement in firepower capability and night vision compared to previous model tanks. The T-80 is the most modern Soviet tank featuring collective nuclear biological/chemical protection, enhanced firepower, improved armor protection and increased mobility.

Infantry fighting vehicles

The BMP M1981 is a new Soviet infantry fighting vehicle that has improved armor protection and mobility over the standard BMP. Armament consists of a hypervelocity 30mm cannon.

Field artillery cannons

The Soviets are pursuing a comprehensive program to upgrade and expand the artillery fire support available to ground. The 122mm 251 is a self-propelled, CBR protected amphibious artillery cannon. The 152mm 2S3 is also self-propelled and is possibly nuclear-capable. The Soviets are continuing deployment of nuclear-capable heavy artillery with the mobile 240mm self-propelled mortar and the 203mm self-propelled gun. Both provide an increased range over older pieces. Two new 152mm guns, one self-propelled and one towed, have been fielded since 1978, are nuclear-capable and replace older pieces which were not nuclear-capable. [Security deletion.]

Field artillery rocket launchers

The 122mm M1975 [security deletion].

SPACE SYSTEMS

a. [Security deletion.]
b. [Security deletion.]
c. [Security deletion.]
d. [Security deletion.]
e. [Security deletion.]
f. [Security deletion.]
g. [Security deletion.]
h. [Security deletion.]
i. [Security deletion.]
j. [Security deletion.]
k. [Security deletion.]

PRESENT SYSTEMS AND NEW REPLACEMENTS

Question 4. In our system, programs reaching the end of the research, development test and evaluation (RDT&E) process tend to determine the future levels of military procurement. What major new weapons systems do you see emerging from the Soviet RDT&E process over the next four years?

Question 5. What existing Soviet systems will these new systems replace?

Answer. The following tables response to the new weapon systems (Question No. 4) within the next four years and the existing system to be replaced (Question No. 5).

AIRCRAFT

New weapons systems	*Existing system to be replaced*
Fighters	
Fulcrum A (MIG-29)	[Security deletion.]
Flanker A (Su-27)	
Bombers	
Bear H	Bear A/B/C, Bison B/C
Blackjack A	Bear, Bison
Transport/Tanker	
Condor A	Cock
Candid tanker	Bison tanker
Support	
Ram M	Mandrake, Mangrove
Mainstay A	Moss
Helicopters	
Mi-28	Hind complement

MISSILES

Air-to-air	
Longer range AAM with terminal homing capability	AA-3/5/6
Air-to-surface	
ALCM (AS-X-15)	New capability

Tactical air-to-surface	
Longer range TASM's	AS-10/11
Sea-launched cruise/ASW	
SLCM (SS-NX-21)	New capability
Surface-to-air (strategic)	
[Security deletion.]	Complement to SA-3, SA-10
Surface-to-air (tactical)	
[Security deletion.]	SA-4a, SA-4b SA-6a, SA-6b SA-8a, SA-8b
Surface-to-air (naval)	
[Security deletion.]	SA-N-4 New capability
Anti-tank	
[Security deletion.]	AT-4 AT-5 [Security deletion.]
Surface-to-surface	
Cruise	
GLCM (SSC-X-4)	New capability
SRBMs	
[Security deletion.]	SS-21, Frog (free rocket over ground) SS-22, SS-12 (Scaleboard) SS-23, SS-1c (SCUD B)
IRBMs	
[Security deletion.]	SS-20
ICBMs	
SS-X-24	SS-17
SS-X-25	SS-11 (in the absence of arms control) SS-13 and as a mobile ICBM (new deployment)
[Security deletion.]	SS-18 SS-19
SLBMs	
[Security deletion.]	Additional capability Additional capability
NAVAL SYSTEMS	
Ships (no new classes)	
Kiev VSTOL carrier (mod)	Improvements/build-up of capability
Krasina cruiser	Improvements/build-up of capability
Submarines	
[Security deletion.]	[Security deletion.] New capability New capability New capability

GROUND SYSTEMS

Tanks

T-80	T-72M
[Security deletion.]	T-62/T-64A
	T-72, T-64A, T-54/55, T-62

Infantry fighting vehicles

[Security deletion.]	BMP

Field artillery cannon

[Security deletion.]	D-30 251 M1976 M1981

Field artillery rocket launcher

[Security deletion.]	Unknown

Air defense gun

[Security deletion.]	ZSU-23-4

SPACE SYSTEMS

Reusable "Space Plane"	[Security deletion.]
Reusable "Space Shuttle"	New system similar to U.S. Space Shuttle.]
[Security deletion] heavy-lift launch vehicles	[Security deletion.]
[Security deletion] medium-lift launch vehicles	[Security deletion.]
Data Relay Satellites	[Security deletion.]
Glonass (global navigation satellites systems)	[Security deletion.]
[Security deletion.]	[Security deletion.]
Photoreconnaissance satellites	[Security deletion.]
[Security deletion.]	[Security deletion.]

ESTIMATED PRODUCTION

Question 6.

What are your preliminary estimates of the production runs for these new systems?

Answer.

ESTIMATED FUTURE PRODUCTION PROJECTIONS 1983–90

Equipment	1983	1984	1985	1986	1987	1988	1989	1990
Tanks								
T-80 (includes Mod)	700	1,000	1,500	2,000	2,500	3,000	3,000	2,500
FST					200	200	200	500
Artillery:								
122-MM SP Howitzer M-1988						100	100	300
122-MM Howitzer M-1987			200	300	500	500	500	500
125-MM AT gun								25
152-MM Howitzer M-1987			150	150	200	300	500	500
152-MM SP gun 2S5	450	440	400	400	400			
[Security deletion.]								
Major surface combatants:								
CVN-X-I							1	
CGN-P-IV						1		
CGX-III	1		1	1				
FFG-P-I					1	2	2	2

ESTIMATED FUTURE PRODUCTION PROJECTIONS 1983-90—Continued

Equipment	1983	1984	1985	1986	1987	1988	1989	1990
Minor surface combatants:								
PTGH-P-I		1	1	3	3	6	6	6
MSI-P-I	1	2	2	3	3	3	3	3
MSF-P-I			1	1	4	3	4	3
MSC-P-I	1	2	3	3	3	3	3	3
LSM-P-I			1	3	4	4	4	4
LST-P-I				1	1	2	2	2
LPD-P-II						1		
LCUA-X-I	1	1	2	2	2	2	2	2
LCMA-P-II				1		1	3	3
AO-P-I			1		1		1	
AGI-P-I				1	1	1	2	2
Bomber:								
Blackjack	1	2	3	3	5	7	9	11
Fighters:								
Flanker	25	65	115	115	120	140	140	145
Fulcrum	35	95	135	155	195	175	125	75
Frogfoot	40	50	50	55	60	75	75	60
Long range interceptor	0	0	0	0	0	0	0	0
Supersonic V/STOL	0	5	10	12	12	15	15	15
Catapulted naval fighter	0	0	6	15	20	20	20	20
Peripheral attack aircraft	0	0	0	8	20	35	85	110
ICBMs:								
SS-X-24	10	25	90	125	125	180	150	100
Small solid ICBM		10	10	20	30	30	30	10
SS-18 improved	10	25	40	100	100	100	75	25
SS-18 class						10	50	100
SS-19 impr	10	30	50	110	110	110	110	50
SS-19 class					10	25	50	100
Small solid mobile ICBM		10	10	25	60	100	150	200
[Security deletion.]								
SAMs:								
SA-10	900	900	1,600	1,600	1,600	1,600	,600	1,600
SA-11 (includes follow on)	350	450	600	600	600	600	600	600
[Security deletion.]								
SA-6 (follow-on)	800	800	800	800	800	800	800	800
SA-8 (follow-on)	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
SA-9/13	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
SA-7/14	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
SA-5 (follow-on)	1,600	1,6000	1,600	1,600	1,600	1,600	1,600	1,600
ABMs:								
ABM-1B								
SA-8								

*Figures represent estimated combined production figures—it is not yet possible to determine how many of each type may be produced.

SOVIET DEFENSE EXPENDITURES BY CATEGORY

Question 7. Please provide the Committee with a pie chart dividing current Soviet defense expenditures into the following categories: (1) military personnel; (2) military retirement; (3) operations and maintenance; (4) procurement; (5) research, development, test and evaluation; (6) military construction; and (7) civil defense.

Answer. The following breakout of the estimated total Soviet defense costs in 1981 is presented in terms of both absolute values and percentages and provides an approximate representation of Soviet resource allocations measured in US dollars (see pie chart attached).

	*1981**
Military personnel	[Security deletion.]
Military retirement	
Operations and maintenance	
Procurement	
Research, development, test and evaluation	
Military construction	
Civil defense	**
Total	$292.0

*Figures are given in billion 1984 dollars.
**Civil defense is not estimated as a separate category in dollars or rubles.

PERCENT BY CATEGORY

Question 8. Please provide the Committee with a graph showing the relative share of Soviet total defense expenditures allocated to each of the categories set forth in Question 7 above from 1970 until the present.

Answer. The following table provides the percentage distribution of the total USSR dollar costs for 1970, 1975, and 1981—benchmark years that are representative of the cost shares for the entire 1970-81 period (see the attached graph).

[In percent]

	1970	1975	1980
Military personnel	(1)	(1)	(1)
Military retirement	(1)	(1)	(1)
Operations and maintenance	(1)	(1)	(1)
Procurement	(1)	(1)	(1)
Research, development, test, and evaluation	(1)	(1)	(1)
Military construction	(1)	(1)	(1)
Civil defense	(2)	(2)	(2)
Total	100	100	100

(1) Security deletion.
(2) Civil defense is not estimated as a separate category in dollars or rubles.

DEFENSE ESTIMATE TO 1985

Question 9. Please provide a graph projecting total Soviet defense expenditures expected in the next four years, subdivided into the same categories set forth in Questions 7 and 8 above.

Answer. DIA is able to provide only an approximate projection of the total dollar cost of the Soviet defense program through 1985. A detailed cost projection, by resource category, is not yet available.

USSR: TOTAL DOLLAR COST OF DEFENSE PROGRAM, 1982-85 (BILLION 1984 DOLLARS)

	1982	1983	1984	1985
Total cost	(1)	(1)	(1)	(1)

(1) Security deletion.

CHANGES IN ALLOCATIONS

Question 10. Have you seen or do you expect any major change in resource allocation within the total Soviet defense budget among the categories set forth in Question 7 above?

Answer. Based on the weapon systems currently in the RDT&E stage, and those anticipated in the future, DIA expects the dollar costs of Soviet military RDT&E to continue to account for an increasing share of the total defense cost. As these systems enter production, the allocation to the procurement category will probably increase.

SIGNIFICANCE OF CHANGE

Question 11. What significance do you ascribe to any changes you have seen or to the lack of change in any of these allocations?

Answer. The increase in resources allocated for RDT&E, in both absolute and relative terms, reflects the growing Soviet interest in incorporating advanced technologies in their weapon systems.

SOVIET SURGE CAPABILITIES

Question 12. Please provide charts comparing production rates and estimated production surge capabilities from IOC date for major Soviet weapons systems of your choice introduced since 1970. Please provide the same data for equivalent U.S. weapons systems. Tactical aircraft, submarines, and major ground combat weapons systems are of particular interest.

Answer. See attached chart.

For some systems two entries are shown because the capability for surge production is dependent in large measure upon the percentage of capacity being used when the industrial mobilization order is given.

The effect of mobilization on Soviet ship production will be minimal over a span of time as short as 24 months. This estimate is based on recognized constraints in the shipbuilding industry such as procurement lead times of 24 months in many cases, and construction times from 24 to more than 60 months for major systems. Production increases would be less than 10 percent for major surface combatants and submarines, and less than 24 percent for small surface combatants.

Data for equivalent U.S. weapon systems is not available to DIA and cannot be provided.

REPRESENTATIVE ESTIMATED PRODUCTION SURGE CAPABILITIES FOR SELECTED SOVIET WEAPONS SYSTEMS

[Security deletion.]

RUBLE AND DOLLAR ESTIMATES

Question 13. You employ both constant dollar estimates and current ruble estimates of Soviet defense expenditures. Why do you maintain these different measures?

Answer. The constant dollar estimate is a measure of what it would cost, using U.S. prices and wages, to produce and man a military force of the same size and with the same weapons as that of the USSR, and to operate that force as the Soviets do. Because this measure is in terms of U.S. costs, the magnitude of Soviet military forces and programs can be directly compared with U.S. military forces and programs. The use of constant dollars permits a measure of real change in resource allocations which excludes the impact of inflation. DIA does not develop its own estimate of the dollar costs of Soviet defense. Rather, DIA uses the CIA cost-analysis model and CIA-developed prices for weapons, with DIA data on weapons production.

Current ruble estimates of Soviet defense expenditures are used because DIA believes that such measures come closest to reflecting the Soviet perspective of its own resource commitment to defense. Also, current ruble estimates permit these expenditures to be measured in the context, and as a share, of the overall Soviet economy.

COMPARATIVE U.S./U.S.S.R. MILITARY PAY

Question 14. Please provide a comparison in both constant dollars and rubles of the basic pay and equivalent Regular Military Compensation received by U.S. and Soviet military personnel of equivalent rank, training, time in grade, and time in service for selected enlisted, non-commissioned officer, warrant officer, company grade officer, field grade officer, and general officer ranks of your choice.

Answer. DIA does not closely follow pay rates of U.S. and Soviet military personnel. CIA would have this type of information.

SIGNIFICANCE OF DOLLAR/RUBLE ESTIMATES

Question 15. You have testified to different rates of growth in Soviet defense expenditures employing the constant dollar and current ruble measures of Soviet resource allocation. What is the significance of the different rates of growth shown using these different methods of calculation?

Answer. The different rates of growth that result when employing the constant dollar or current ruble estimate are to be expected because the two methodologies are different and have entirely different purposes. The dollar estimate is designed to cost Soviet military activities using U.S. constant dollar prices, technology, and learning curves in order to make comparisons with U.S. defense forces. The current ruble estimate is designed to measure actual Soviet defense spending, the impact of defense on the economy and the Soviet perception of defense activities. Current ruble estimates of Soviet defense growth are likely to be much higher than U.S. constant dollar growth rates because they include the effects of Soviet inflation, technological inefficiency and industrial bottlenecks.

METHODS FOR DOLLAR/RUBLE CALCULATIONS

Question 16. Please describe how you derive you constant dollar and current ruble measures of Soviet defense expenditures. Your answer should address the method of calculation, not the sources of the data employed in the calculation.

Answer. The DIA uses a building-block method to estimate the dollar cost of the Soviet defense program. This approach entails the preparation of a detailed listing of all aspects of Soviet military activity, such as RDT&E, procurement, construction, personnel, and operations and maintenance. This listing is derived from estimates of annual military production and from order-of-battle data. These components are priced in terms of what it would cost the U.S. to produce and man a force of the same size and with the same weapons as that of the USSR and to operate that force as the Soviets do. The unit procurement and operating costs for individual items of equipment are derived either within the intelligence community or from contracts with U.S. manufacturers of similar equipment. These unit costs are then multiplied by the appropriate quantities, and the results are aggregated to derive an estimate of the total dollar cost. A constant price base, with the index series derived primarily from the Bureau of Labor Statistics, is used so that the cost trends reflect actual changes in the levels of military activity.

[Security deletion.]

SOVIET INFLATION

Question 17. Please provide a graph showing your estimate of inflation for the Soviet economy as a whole and for Soviet defense expenditures from 1970 until the present.

Answer. [Security deletion.]

Question 18. How reliable is your measure of inflation in the Soviet Union?

Answer. [Security deletion.]

SOVIET BUDGETARY PROCESS

Question 19. Please provide a summary narrative description of the process by which the Soviet military budget is developed and how it is integrated with other Soviet resource allocation priorities in the Soviet national economic planning process.

Answer. The answer is classified [security deletion] and is on file at DIA, [security deletion] the Pentagon, [security deletion].

The question cannot be meaningfully answered at the Secret or Unclassified level.

COMPARATIVE U.S./U.S.S.R. ALLIANCE EXPENDITURES

Question 20. Please compare the cost of the Soviet Union's contributions to the Warsaw Pact to the cost of the United States' contributions to NATO during the period from 1970 until the present.

Answer. DIA has made a preliminary estimate of the annual dollar cost of NATO-Warsaw Pact defense activities for 1970 to 1981. This comparison shows that the estimated dollar cost of the Soviet defense program consistently accounts for almost 90 percent of the total Warsaw Pact costs, while the US defense outlays represent a declining share of the NATO total—from 60 percent in 1970 to 55 percent in 1981.

SOVIET ARMS CONTROL POLICY AND GOALS

Question 21. Please describe the process by which the Soviet Union sets its arms control policy and goals.

Answer. The Soviet Arms control policy process is a highly centralized procedure which involves close coordination and interaction among senior party and governmental leaders and organizations. Most significantly however, the entire process is determined by the political goals and objectives of the party hierarchy. In this regard, the Politburo, as the supreme political authority in the Soviet system, makes the final decision on arms control policy.

A major participant in the entire process is the Soviet Defense Council, a government body which operates basically as a subcommittee of the Politburo. The General Staff acts as executive secretariat for the Defense Council. [Security deletion.]

There are numerous party and governmental organizations which contribute to the policy formulation process. From the Party side, the Politburo employs the staff of the Central Committee (CC) Secretariat which works closely with officials from the Ministry of Foreign Affairs, the Ministry of Defense and the Military Industrial Commission. Additionally, major research institutes such as the USA institute can make inputs on an ad hoc basis. [Security deletion.]

SOVIET GENERAL STAFF AND ARMS CONTROL

Question 22. What role does the Soviet General Staff play in their arms control policy process?

Answer. The Soviet General Staff plays a critical role in arms control negotiations and in strategic policy formulation. The General Staff provides the Defense Council, the key coordinating and decisionmaking body in the Soviet Union for national security matters, with technical information [security deletion].

General Staff officers also directly participate in arms control negotiations, serving as part of official Soviet delegations. In addition, several top General Staff spokesmen have played a very vocal role in supporting and elucidating Soviet arms control policies and positions. The Chief of the Soviet General Staff, Marshal Nikolai Ogarkov, frequently addresses arms control issues in his speeches and writings. Prior to his appointment as Chief of the General Staff, Ogarkov was [security deletion] Ogarkov, in his capacity as the top military leader of the Soviet armed forces, participates in Defense Council sessions and wields considerable authority—particularly on arms control matters—in representing the viewpoint of the professional military. Col. Gen. Nikolai Chervov, who is the Chief of a General Staff directorate [security deletion] has made numerous appearances on Soviet television addressing arms control issues. He has also authored a number of articles on the topic.

EQUIVALENT U.S./U.S.S.R. ARMS CONTROL AGENCIES

Question 23. Within the Soviet government, is there any organization equivalent in power and function to our Arms Control and Disarmament Agency?

Answer. To the knowledge of DIA, there is no ACDA equivalent in the Soviet Union. As described in the Answer to Question #21, power and decisionmaking for arms control issues resides with the Politburo of the Soviet Communist Party interacting with the Soviet Defense Council.

RAILROADS ROLLING STOCK PRODUCTION

Question 24. Have you identified any recent changes in Soviet railroad rolling stock production?

Answer. Yes, the total output of rolling stock has been slowly declining since the peak year of 1976 but the actual carrying capacity of the cars now being made exceeds that of the 1976 output.

CHANGES IN PRODUCTION

Question 25. What significance, if any, do you attach to any change or lack of change in Soviet rolling stock production?

Answer. It appears that the Soviets are attempting to increase the carrying capacity of their rail lines by building large capacity, higher load capacity freight cars as well as specialized types of cars such as automatic dumping coal cars. Such an approach is necessary in order to increase the volume of traffic without building new rail lines.

DATA ON CHINA'S DEFENSE EXPENDITURES

Question 26. Why did you not provide data on the Peoples Republic of China's defense expenditures and systems development in the same detail as you did the data on the Soviet Union?

Answer. Detailed intelligence on the People's Republic of China's Defense expenditures does not exist to the same extent as it does for the Soviet Union.

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1983

TUESDAY, SEPTEMBER 20, 1983

Congress of the United States,
Subcommittee on International Trade, Finance, and
Security Economics of the Joint Economic Committee,
Washington, D.C.

The subcommittee met, pursuant to notice, in executive session, at 10 a.m., in room SD-538, Dirksen Senate Office Building, Hon. William Proxmire (vice chairman of the subcommittee) presiding.

Present: Senators Proxmire and Sarbanes; and Representatives Scheuer and Wylie.

Also present: Charles H. Bradford, assistant director, and Richard F. Kaufman, assistant director-general counsel.

OPENING STATEMENT OF SENATOR PROXMIRE, VICE CHAIRMAN

Senator Proxmire. The subcommittee will come to order.

Gentlemen, welcome. I am delighted to see you here this morning. I am happy to welcome Robert Gates, the new Chairman of the National Intelligence Council and the Deputy Director for Intelligence for the Central Intelligence Agency to this year's hearing on the allocation of resources in the Soviet Union and China.

With respect to the Soviet Union, we have asked that the presentation focus on economic policy changes that have been made or are likely to be made under the new Andropov government, as well as on recent economic performance and the prospects for the next few years.

We also want to discuss the trends, the recent trends in defense allocations.

Concerning China, we would like you to explain China's recent economic performance, its priorities as between heavier and lighter industries and the reforms which appear to be encouraging decentralization in private enterprise in what appears to be a remarkable growth in China and economic progress in China, compared to past performance.

Your excellent prepared briefings have been sent to us in advance of this hearing. I assume you will summarize the briefings, giving us the highlights and allowing us to use the balance of the hearings for questions.

I want to urge you to provide us with an unclassified version of the briefing as soon as possible, so that it can be released to the general public. Also, I hope the record of this morning's hearings can be sanitized quickly.

We know that we have already heard testimony from your counterpart, the Defense Intelligence Agency, and that testimony, plus your own, will comprise the published proceedings of this hearing.

By the way, I would like to mention, as I did to General Bissell before you, that this marks the 10th anniversary of these hearings, which I initiated in 1974. I think we can all be proud of the record that has been compiled, especially the contributions by the spokesmen for the intelligence community, such as yourself. With any luck and continued cooperation, the series will continue.

Mr. Gates, you may introduce the people who accompanied you and then proceed with your presentation.

STATEMENT OF ROBERT GATES, CHAIRMAN, NATIONAL INTELLIGENCE COUNCIL AND DEPUTY DIRECTOR FOR INTELLIGENCE, CENTRAL INTELLIGENCE AGENCY, ACCOMPANIED BY JAMES NOREN AND JOSEPH LICARI, OFFICE OF SOVIET ANALYSIS; LANCE HAUS, OFFICE OF GLOBAL ISSUES; AND ROBIN PHILLIPS, OFFICE OF EAST ASIAN ANALYSIS

Mr. GATES. Thank you, Mr. Chairman. I am accompanied by four people: Mr. James Noren and Mr. Joseph Licari of our Office of Soviet Analysis, on my left; Mr. Lance Haus, on my right, of our Office of Global Issues, who works on Soviet energy matters; and Mr. Robin Phillips, a specialist on the Chinese economy in our Office of East Asian Analysis.

As you requested, Mr. Chairman, I have put together a summary of the overall statement, and I expect that it will run about 20 minutes, or thereabouts.

Senator PROXMIRE. OK. Fine. Go right ahead.

Mr. GATES. Let me start with the Soviet Union and economic developments in the past 2 years.

ECONOMIC DEVELOPMENTS IN THE SOVIET UNION

Last year and the year before, growth in the Soviet gross national product averaged about 2 percent per year, somewhat above the level attained during 1979–80, but well below both the rate achieved during the 1970's and the rate implied by the 1981–85 plan.

The slowdown in the growth of industrial output was especially worrisome. In 1981–82, the average annual growth was then 2½ percent, about half the rate called for in the 1981–85 plan. Two developments during this period were particularly noteworthy. The slowdown was evident in practically every industrial branch, and the productivity of labor and capital employed in industry was down dramatically.

Within industry, the growth of energy production in the U.S.S.R. has decelerated significantly; while gas output grew rapidly in 1981 and 1982, raw coal output increased in 1982 for the first time since 1978. After three decades of growth, oil production in the U.S.S.R. has begun to level off, although the prospects for the future are considerably better than we once believed.

Based on some extensive research over the past 2 years, we now estimate that the combined output of Soviet oil, natural gas, and coal will increase by 10 to 12 percent in 1981–85, compared with the 22 percent achieved in 1976-80. In the latter half of the decade, energy production will be about 6 percent greater than in 1981-85. Oil production probably will plateau by the middle of this decade and then subside slowly by 1990. All things considered, the energy picture implies much less of a constraint on growth of the domestic economy than we thought last summer.

Shortfalls in the general availability of raw materials were a major reason for the marked slowdown in industrial production in 1981-82. Declining growth in production of coal and its deteriorating quality, for example, hurt electric power and ferrous metallurgy. Shortages of electric power, in turn, impaired the performance of industrial power customers, and an insufficient supply of steel products contributed to lower growth in machinery production.

The low rate of growth in machinery output, only 3.2 percent during 1981-82, is about half the rate planned for 1981-85 and by far the lowest since World War II. Machine building is a pivotal sector, producing military hardware as well as consumer durables and machinery for investment. The hard choices facing Andropov are most evident in this sector.

The value of agricultural output, almost the same in 1981 as in 1980, increased by somewhat more than 3 percent in 1982. [Security deletion.]

Even with the 1982 rebound, farm output was still nearly 7 percent below the 1978 peak year level.

A substantial share of the responsibility for the fall off in industrial growth must be assigned to bottlenecks in the transportation of both raw materials and finished products. Total freight turnover, which has increased at an annual rate of 3.5 percent during 1976-80, actually fell last year. The principal culprit has been the railroads, which shoulder the major part of the transportation burden in the U.S.S.R.

As Andropov noted in his early speeches, much remained to be done in the area of consumer welfare when he took office. According to our estimates, total per capita consumption increased in 1981 by about 1 percent, but then declined in 1982 by about 1 percent. Meanwhile, the availability of quality foods declined generally. Per capita meat consumption, for instance, was down slightly in 1982 from its peak 1979 level.

The U.S.S.R. substantially improved its hard currency payments position in 1982, however. By strongly pushing oil exports and holding down imports, the Soviet Union slashed its hard currency trade deficit to $1.2 billion or about one-third of the deficit incurred in 1981. By the end of the year, gross hard currency debt had fallen by an estimated $800 million and totaled about $20 billion. Assets held in Western banks were a record high $10 billion at the end of last year.

MILITARY OUTLAYS

Mr. Chairman, I have just reviewed the general performance of the Soviet economy during the last 2 years. Let me turn now to the particular issue of the cost of Soviet military programs.

As we noted in our submission to your subcommittee,[1] our latest estimate indicates that Soviet outlays in constant prices have leveled off since 1976 in at least one major area: procurement of military hardware. Costs in all all other categories of Soviet defense continued to grow over the entire 1972–81 period. [Security deletion.]

As General Bissell indicated in his June testimony, DIA estimates of weapons production also show flat or declining trends for major categories since the mid-1970's. The DIA's estimate of Soviet defense spending, which includes inflation, shows substantial growth in total defense and procurement costs, though at a somewhat slower rate since 1976.

Senator PROXMIRE. When you say "includes inflation," you mean it does not adjust for inflation, and therefore, the increase includes the fact that prices were higher?

Mr. GATES. Yes, sir.

Senator PROXMIRE. So that if there were an adjustment for inflation, then it would show a lesser increase; is that right?

Mr. GATES. Yes, sir. That is right.

REASONS FOR SLOWER MILITARY GROWTH

The continued slow growth since 1976 seems related to a combination of complex factors, including technological problems, industrial bottlenecks, and policy decisions. We know that a number of major Soviet weapons ran into technical delays that pushed their serial production back at least a few years. Raw material, energy, and transportation bottlenecks appear to have disrupted military production, just as they did civilian production during this period. The leadership, either anticipating these problems or in response to them, may have taken steps to stretch out military procurement. Moreover, decisions to comply with SALT I and the unratified SALT II treaty also may have slowed procurement in certain areas.

I should note, however—and it is important to put this defense issue in context—that the costs of current Soviet military activities are very large, about 45 percent greater than those of the United States. Despite the plateau observed in the level of procurement, Soviet forces have produced some 2,000 ICBM and SLBM missiles, 5,000 tactical combat and interceptor aircraft, 65 SSBN and attack submarines, and some 31 major surface combatants since 1975. Thus, even with reduced growth, they could still introduce many systems and continue to improve their forces throughout this decade. Indeed, we have noted a continuing expansion of Soviet industrial capability associated with the production of weapons, and we also would note the large number of military R&D programs underway, both of which position the Soviets to return to their earlier rates of defense growth, should they overcome some of these other problems.

I would also note that this decline takes place in the context of the overall economic decline and that the rate of spending on defense remains about 13 to 14 percent of gross national product, where it has been for the past decade or more.

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[1] See submission (briefing paper) beginning on p. 293.

As the first 2 years of the 1981-85 plan neared completion, it must have become clear to Soviet leaders that their economic strategy was not working. Nonetheless, on the basis of information published in the 1983 plan and what has happened since, we conclude that Andropov is still basically holding to the course set by Brezhnev. In particular, it does not appear that Andropov has accelerated Soviet military spending. There are also no indications of significant change in agricultural policy since Andropov took power. The priority the leadership has given the food program mirrors an apparent high preoccupation with living standards.

ANDROPOV INITIATIVES

Aside from its agricultural policies, the new regime has shown concern for the welfare of the population by a flurry of decrees published this year which call for more attention to consumer-related programs. Nevertheless, the regime has very little room for maneuver on consumer issues until the food program pays some return and until more investment can be spared for the production of soft goods and consumer durables.

The major new element of economic policy this year is the discipline campaign. Andropov does not believe that greater discipline alone will cure the economy's ills, but he sees it as a necessary beginning. Although the campaign is designed to tighten discipline all around, it so far appears to be directed primarily against blue-collar workers. In the more sensitive area of reforming planning and management, the new regime has introduced only some very limited measures to decentralize decisionmaking in both industry and agriculture. These are described in some detail in our submission.

ECONOMIC PERFORMANCE IN 1983

Turning now to the outlook for 1983, we believe that some of the economic pressures on the Andropov leadership will ease slightly this year. Based on statistics available for the first 7 months of 1983, we estimate the GNP will rise by 3.5 to 4 percent, well above the approximately 2-percent rate of growth achieved in both 1981 and 1982.

All major sectors of the economy are doing better this year. The rebound in industry reflects a comparison with an exceedingly poor first half of 1982. It also owes much to the better-than-normal winter and spring weather conditions which eased transportation blockages and permitted some rebuilding of stocks of fuel and other inputs less in demand when the weather is mild. We estimate that industrial production will grow by about 3 percent this year, somewhat more than the 2½-percent annual rate in 1982.

Following 4 consecutive years of poor agricultural performance a substantial recovery is in the cards for 1983. We expect total farm output to increase by about 7 to 8 percent, compared with slightly more than 3 percent in 1982, and almost no growth in 1981. Barring a major deterioration in weather conditions, a grain harvest of about 200 million tons is likely according to USDA projections, the best crop since the 1978 record crop of 237 million tons. The outlook for the other major crops is also good.

On the other hand, the new regime, which apparently came to power with the support of the military, may well be under pressure to speed up defense spending. Opening the spigot wider would be costly. Any sharp acceleration of the level of military procurement will make it much more difficult for Moscow to solve its general economic problems. Andropov must soon decide how to approach the defense spending and resource allocation issue because the planning cycle for the 1986–90 plan is already underway.

LONGER TERM PROSPECTS

A stronger economic showing this year would help Andropov politically but it would not, in our view, foreshadow a higher rate of growth over the longer term. As we say in the submission you have received, the problems that have constrained growth in the late 1970's have not gone away. In fact, some of them are just reaching peak severity.

Most important, because of the slower growth of labor and capital expected in the remainder of the 1980's long-term growth would have to be sustained by increases in the combined productivity of labor and capital. A turnaround in productivity trends is not likely, however, without fundamental change in the economic system and until worker incentives are improved. But the regime's present strategy for spurring efficiency seems unequal to the task.

For example, long cultural conditioning of the work force and the difficulty of reversing trends entrenched for the last 20 years will present substantial obstacles to broad use of increased wage differentials to stimulate productivity. Serious obstacles also stand in the way of continued implementation of the discipline campaign. Public tolerance of a tough discipline drive 30 years after Stalin is likely to be tenuous and transitory. In the current labor market, moreover, management will be reluctant to crack down on workers who can easily quit and find jobs elsewhere, often at higher pay.

POSSIBILITIES FOR IMPROVEMENT

The regime could improve the performance of the economy in a number of ways. The current investment plan, for instance, is lopsided and lacks balance, stressing the development of energy and agriculture at the expense of most other sectors vital to economic growth. A greater return could probably be achieved by shifting more investment to sectors such as machine building, transportation, and ferrous metal. In this connection, holding down growth in defense spending would free up resources that could be used to bolster the civilian economy. Some gains could also be achieved by identifying those areas in the economy where mismanagement and administrative inefficiency are worse and replacing the managers at all levels with more competent people.

The greatest potential for reviving economic growth, however, lies in more radical measures that would alter Soviet economic mechanisms. The major constraint, however, in changing the Soviet economic system is that Andropov and the rest of the leadership, for compelling economic and political reasons, will not dismantle a command economy and replace it with some form of market socialism. Given Andropov's emphasis thus far on study and small-scale experiments, we think that reforms of organization and management will have little impact on the economy in the next years. Indeed, the improved performance in 1983 may even reduce the pressure for economic change in the shortrun.

DEVELOPMENTS IN CHINESE ECONOMY

Now, Mr. Chairman, I would like to conclude my summary remarks with a few observations on recent developments on the Chinese economy.

The Chinese economy today is in much better shape than it was a few years ago. Progress can be seen in the substantial improvements in personal incomes and consumption, in the remarkable growth in agriculture, and in the expansion of foreign trade. There is now a sense of direction and purpose to economic policies. The new Sixth five-year plan for 1981–85, approved last December, provides a reasonably well-defined policy framework, something that had not existed since the 1950's. During the Culture Revolution, 1966 to 1976, China's planning apparatus was dismantled, and plans reportedly consisted of little more than targets for a few important commodities.

In several respects, however, economic progress has proved elusive. The appalling waste and inefficiency that characterized the Chinese economy in the 1970's remains equally serious today. Paradoxically, management reforms designed to reduce waste by strengthening the profit motive and decentralizing financial decisionmaking have also made it more difficult to complete urgently needed projects in bottleneck sectors such as energy and transportation.

Last year the investment plan called for only a nominal increase in capital construction. By the end of the year, actual spending was up over 25 percent. Almost half the increase came from unplanned spending by enterprises financed from retained profits permitted under new government rules. This surge in investment, as in 1980, stretched existing supplies of scarce building materials and made it more difficult to guarantee cement, steel, glass, and the like, to priority projects.

This failure to meet completion targets for critical energy and transport projects is at the center of current policy discussions in Peking. Only slightly less important is how to insure further improvements in living standards and consumption in the face of large investment requirements.

PERFORMANCE IN 1982

1982 was fairly typical of recent years. Overall economic growth was at least moderate to good. GNP and industrial production each increased more than 7 percent. Energy production rose by 5.7 percent, easing what is still the major constraint on growth, while agricultural output, benefiting from favorable weather and a continuation of liberal policies, grew by a remarkable 11 percent.

Despite the fact that increases in personal incomes were slightly smaller than in 1981, Peking still had problems providing adequate supplies of consumer goods. Chinese consumers, not finding what they want in the stores, continued to deposit large sums of money in savings accounts, and inventories of rejected merchandise continued to pile up. The population also was faced with a rise in urban unemployment, which perhaps reached 10 percent, and an inflation rate of between 5 and 10 percent.

At the end of 1982, China was in its strongest international financial position ever. Foreign exchange reserves stood at over $11 billion, more than double the year earlier total. Most of the increase in reserves, however, came as a result of cuts in imports which fell by 10 percent. With exports growing by over 3 percent, the trade surplus reached $6.3 billion.

Import cuts also had an impact on Sino-U.S. trade. China continued to run a deficit, although that deficit shrank in 1982. A 21-percent increase in Chinese exports, combined with a 19-percent decline in their imports, reduced China's trade deficit with the United States from $1.7 billion in 1981 to $0.6 billion last year. Chinese sales of textiles to the United States were up 34 percent and the purchases of U.S. grain were up 5 percent on a volume basis. A 60-percent decline in imports of textile fibers seems to have been unrelated to the Sino-U.S. textile dispute. It appears instead to have been a matter of the Chinese having excessive inventories of fiber.

PERFORMANCE IN 1983

The first half of 1983 has been a continuation of some of the more unwelcome developments of 1982. Investment spending has continued to grow at a 20-percent pace, prodding the regime to review the construction program and to halt or drop lower priority projects. Too rapid growth in heavy industry continues to squeeze consumer goods production. During the first 6 months of this year heavy industrial output rose by 12.2 percent over the year earlier period. The annual target is 3.9 percent. Light industry grew by only 5.4 percent.

REFORMS

Earlier I mentioned management reforms. Since the late 1980's China has experimented with management reforms in practically every sector of the economy. The basic thrust has been to decentralize decisionmaking and attempt to boost production and efficiency.

Reforms in agriculture have shown the most striking success. Essentially, these have entailed a reduction of the government's role in production and marketing decisions. Most of these decisions apparently are now made by farm households or by individual farmers. We believe these changes have been very important in agricultural growth since the late 1970's, but—and this is a major complication—Peking also has raised prices for agricultural products. This by itself has probably been a considerable stimulus.

In industry, the reforms have involved strengthening the profit motive and allowing enterprises to retain a portion of their profits. Intuitively, this type of reform is appealing, but because of major irrationalities in China's price system, the changes have not produced the desired effects. The reforms, moreover, have also provided the funds for enterprises to carry out additional investment, resulting in the overextended construction program mentioned earlier.

In another interesting reform, Peking now permits individuals to open their own businesses, in some instances extending loans and allowing them to hire workers, usually only three or four, who are designated as apprentices. This more liberal stance on individual enterprises has been a very practical one for two reasons: large unemployment and the extreme scarcity of personal service personnel such as barbers and appliance repairmen. On the whole, individual enterprises still are not terribly significant to the Chinese economy, but they have grown rapidly. In 1978, there were only 150,000 individual laborers in urban areas. By the end of 1982, there were 1.5 million. Rapid growth, by any standard.

Other reforms include increased use of domestic bank loans for investment, raising interest rates to allocate investment more rationally, encouraging direct contracts between producer and consumer, allowing some product sales at prices that differ from State-set prices, and providing free markets to allow peasants to sell their produce in urban and rural areas.

The examples I have cited perhaps give you an idea of the type of reforms the Chinese are interested in. At this stage, judging their net impact on economic performance is very difficult. Currently, Peking has adopted a more cautious approach to economic reform. Because there are so many day-to-day problems that demand attention, and because they want to give more thought to the reform program, the Chinese leadership has postponed further major changes in the system until sometime after 1985, the end of the current "Five-Year Plan."

Mr. Chairman, this concludes my summary on both the Soviet and Chinese economies. We would be pleased to take whatever questions you may have.

[The prepared statement of Mr. Gates follows:]

PREPARED STATEMENT OF ROBERT GATES

The Soviet Economy

I. Mr. Chairman, in inviting us to testify on the Soviet economy, you asked that we focus on economic policy changes under the new leadership and the significance of those changes, economic performance in 1982 and thus far in 1983, and the outlook over the next few years. You also requested that we discuss trends in the Soviet Union's allocation of resources to defense.

A. Let me start with economic developments in the past two years. Last year and the year before, growth in Soviet gross national product (GNP) averaged about 2 percent per year, somewhat above the level attained during 1979-80 but well below both the rate achieved during the 1970s and the rate implied by the 1981-85 Plan (figure 1).

B. The slowdown in the growth of industrial output was especially worrisome.

1. In 1981-82, average annual growth was less than 2 1/2 percent, about half the rate called for in the 1981-85 Plan (figure 2).
2. Two developments during this period were particularly noteworthy: the slowdown was evident in practically every industrial branch, and the productivity of labor and capital employed in industry was down dramatically.

Figure 1

USSR: Average Annual Percentage
Growth of GNP

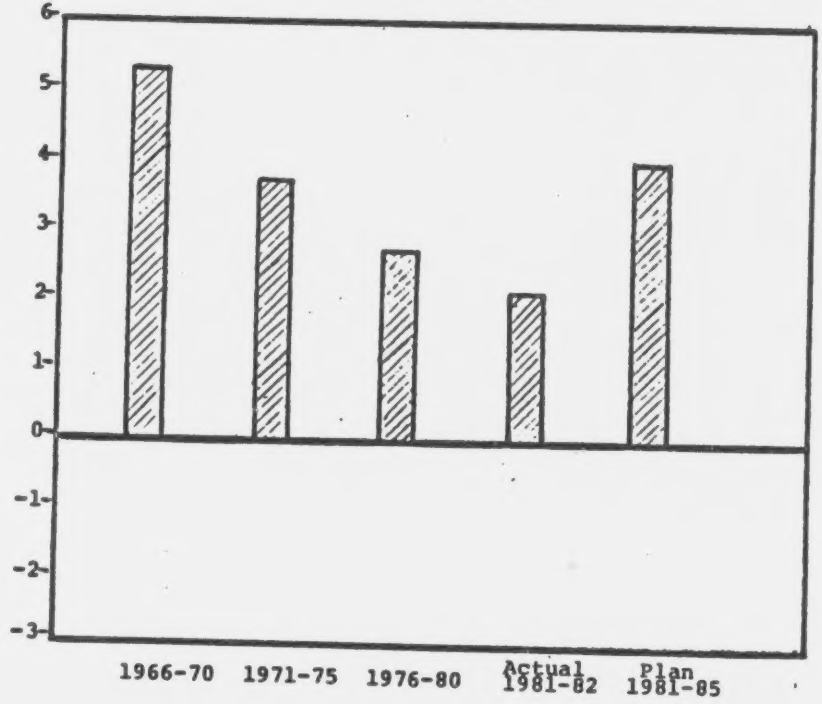
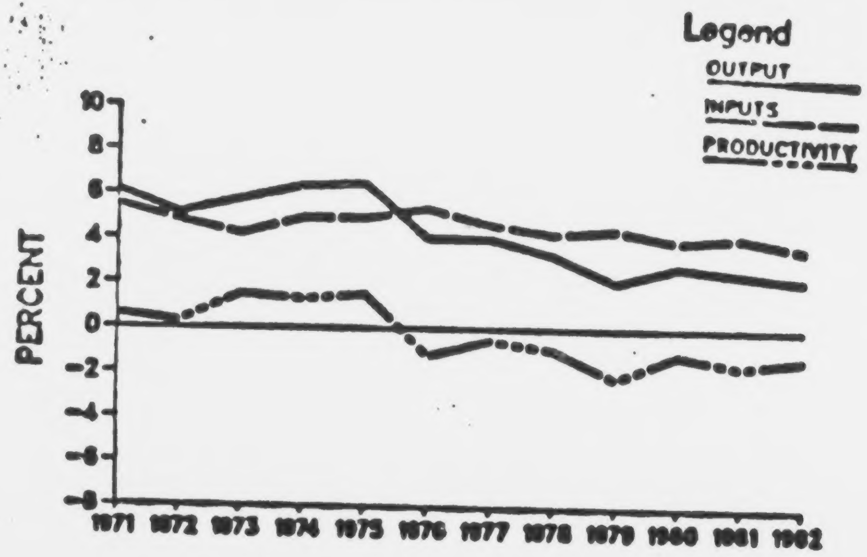


Figure 2

GROWTH IN OUTPUT, INPUTS, AND PRODUCTIVITY IN SOVIET INDUSTRY



C. Within industry the growth of energy production in the USSR has decelerated significantly.

  1. After three decades of growth, oil production in the USSR has begun to level off, although--as I will explain later--the prospects for the future are considerably better than we once thought. Production of oil (including gas condensate) has inched forward during the current five-year planning period and now stands at 12.4 million barrels per day.
  2. While gas output grew rapidly in 1981 and 1982, raw coal output increased in 1982 for the first time since 1978.
  3. Shortfalls in the general availability of raw materials were a major reason for the marked slowdown in industrial production in 1981-82 (figure 3). Declining growth in production of coal and its deteriorating quality, for example, hurt electric power and ferrous metallurgy. Shortages of electric power, in turn, impaired the performance of industrial power customers, and an insufficient supply of steel products contributed to the lower growth in machinery production.

D. Stagnation in the output of rolled steel products in 1981-82 held back growth in machinery.

  1. Machinebuilding is a pivotal sector, producing military hardware as well as consumer durables and machinery for investment.

Figure 3

UNCLASSIFIED

USSR: PRODUCTION OF ENERGY, 1970–82

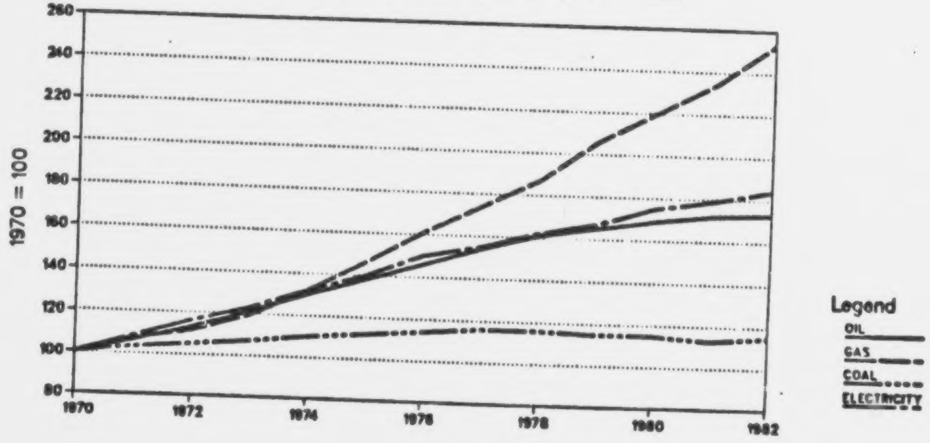


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Figure 3 (cont.)

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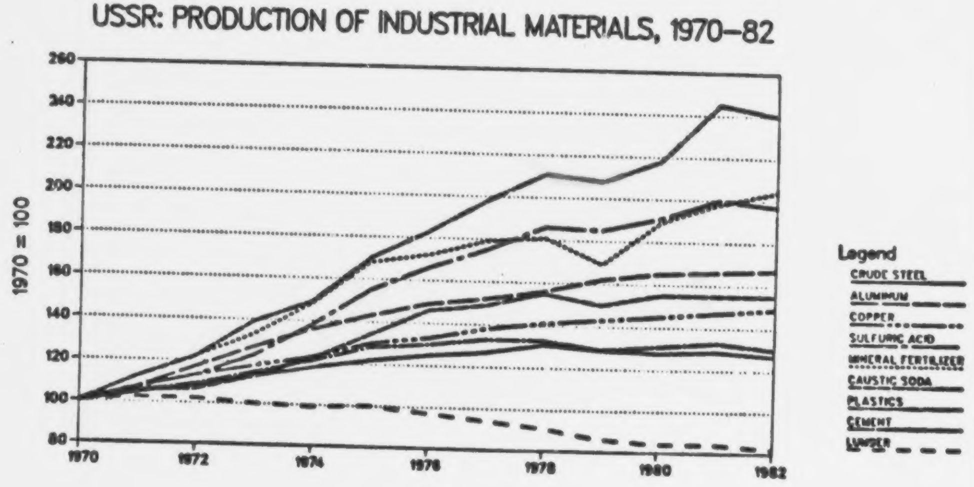


UNCLASSIFIED

2. The low rate of growth of machinery output--only 3.2 percent annually during 1981-82--is about half the rate planned for 1981-85 and by far the lowest since World War II.
3. The hard choices on resource allocation facing Andropov are most evident in the this sector. At current levels of investment, demand for machinery and equipment for domestic investment is rising by as much as 7-9 percent per year.
4. Meanwhile, the regime would like to push production of consumer durables so as to reduce some of the unsatisfied demand in consumer markets.
5. But the 3-percent average annual growth achieved in 1981-82 suggests that the goals for total production of machinery are unlikely to be met in the near future.
6. The pressure on allocations to investment and the consumer could be eased in the near term in two ways: by holding down the growth in production of military hardware and by increasing net imports of machinery. In the longer term, more investment in the machinery sector and its supporting branches is needed.

E. The growth of output in light industry and food processing during 1981-82 paralleled that of industry as a whole.

1. Despite large imports of grain, sugar, and other farm

products, shortages of agricultural raw materials contributed to the weak performance of food processing and (to a much lesser extent) of light industry in 1981-82.

F. The value of agricultural output, almost the same in 1981 as in 1980, increased by somewhat more than 3 percent in 1982. USDA estimates grain production at 180 million tons last year--an increase of 20 million tons over 1981 but some 55 million tons short of plan.

1. In the crucial livestock sector, meat output rose only fractionally in 1982 while milk production turned upward for the first time since 1977.
2. Even with the 1982 rebound, farm output was still nearly 7 percent below the 1978 peak-year level. In fact, the results for 1981-82 have put most of the 11th Five-Year Plan agricultural production goals beyond reach.

G. A substantial share of the responsibility for the falloff in industrial growth must be assigned to bottlenecks in the transportation of both raw materials and finished products.

1. Plants were shut down intermittently, production lines were disrupted as machines and workers stood idle for lack of raw materials, and finished products piled up on loading docks.
2. Total freight turnover, which had increased at an annual rate of 3.5 percent during 1976-80, actually

fell slightly last year.

3. The principal culprit has been the railroads, which shoulder the major part of the transportation burden in the USSR.

H. As Andropov noted in his early speeches, much remained to be done in the area of consumer welfare when he took office.

1. According to our estimates, total per capita consumption increased in 1981 by about one percent--but then declined in 1982 by almost one percent.
2. Meanwhile, the availability of quality foods declined generally. Per capita meat consumption, for instance, was down slightly in 1982 from its peak 1979 level.
3. Some signs of unrest--such as short-lived work stoppages--occurred during 1981-82, but expressions of discontent generally were contained or averted. Faced with long lines at state outlets, consumers dealt with the shortages in ways that did not threaten the regime--by buying higher-priced foods in the officially sanctioned free markets, for example, and through barter and black-market activity.

I. After coping successfully with an earlier runup of hard currency debt, the USSR was hit in 1981 by a rising agricultural import bill and the need to provide hard currency assistance to Poland.

1. The volume of grain purchases jumped by more than

one-third, to 39 million tons. The deficit on merchandise trade rose to $4 billion, compared with $2.5 billion in 1980.

2. The gap would have been even higher had Moscow not pushed exports (mainly oil) and trimmed imports (mainly machinery and equipment) in the last half of 1981.

3. The Soviets improved their hard currency payments position in 1982. By strongly pushing oil exports and holding down imports, the USSR slashed its hard currency trade deficit to $1.3 billion, or one-third of the deficit incurred in 1981.

4. The easing of its hard currency payments position, coupled with a probable fall in hard currency assistance to Poland, allowed Moscow to reduce its hard currency debt in 1982. By the end of the year, gross debt had fallen by an estimated $800 million and totaled $20.1 billion. Assets in Western banks were a record-high $10 billion at the end of last year.

II. Mr. Chairman, I have just reviewed the general performance of the Soviet economy during the last two years. Let me now turn to the particular issue of Soviet military expenditures. Our approach to defense-spending estimates yields much more confidence in medium- and long-term trends than year-to-year movements. Consequently, I will discuss our estimates for the period since 1970.

A. Our latest estimate of Soviet military expenditures indicates that defense spending in constant 1970 ruble prices continues to increase.

   1. Unlike our past estimates, however, the new evidence incorporated in our present estimate indicates that Soviet expenditures have leveled off since 1976 in at least one major area, procurement of military hardware.

   2. Total Soviet defense costs, measured in constant 1970 rubles, grew at an average annual rate of 4-5 percent during 1966-76 (about the same as reported in earlier estimates).

   3. Our new estimate, however, shows that like overall economic growth the rise in the total cost of defense since 1976 has been slower--about 2 percent a year.

   4. The rate of growth of overall defense costs is lower because procurement of military hardware--the largest category of defense spending--was almost flat in 1976-81.

B. New information indicates that the Soviets did not field weapons as rapidly after 1976 as before.

   1. Practically all major categories of Soviet weapons were affected--missiles, aircraft, and ships. This phenomenon was only partially offset by the tendency of newer, more sophisticated weapon systems to cost more.

   2. Costs in all other categories of Soviet defense

continued to grow at historic rates over the entire 1972-81 period. Operations and maintenance costs, for example, grew by 3-4 percent annually; personnel costs increased by slightly less than 2 percent a year.

3. Meanwhile, the burden of defense in the USSR--the share of GNP devoted to defense--remained roughly constant at 13-14 percent through the 1970s because defense and GNP have grown at about the same rate. We had previously forecast that the defense share would increase by one-percentage point in the early 1980s.

C. The slowdown in the growth of military procurement cannot be explained by any single factor.

1. Initially at least, the absence of growth in military procurement might have been attributed to natural lulls in production as older weapon programs were phased out before new ones began. The extended nature of the slowdown, however, goes far beyond normal dips in procurement cycles, which usually have lasted no more than a year or so.

2. The continued slow growth since the late 1970s seems instead related to a combination of complex factors including technological problems, industrial bottlenecks, and policy decisions:

   a. A number of major Soviet weapons ran may have run into technical delays that pushed their serial production back at least a few years.

b. Raw material, energy, and transportation bottlenecks could have disrupted military production just as they did civilian production during this period.

c. The leadership, either anticipating these problems or in response to them, may have taken steps to stretch out military rocurement.

d. Decisions to comply with SALT I and the unratified SALT II treaty also may have slowed the pace of procurement in certain areas.

III. The sluggish performance of the Soviet economy in 1981-82 partly reflected circumstances that were beyond the leadership's control. It stemmed mainly, however, from resource allocation decisions made earlier and from long standing flaws in the USSR's system of planning and administration.

A. First, I will list briefly some of the external factors bearing on the economy.

1. Poor weather, drought in particular, continued to plague the farm sector during 1981-82 as the USSR suffered its third and fourth consecutive poor grain harvests.

2. To a lesser extent, harsh weather also hindered construction, transportation, and industry, especially the production of electric power--a input critical to all sectors of the economy.

    3. Economic performance was affected also by a reduction in the number of people entering the labor force. Increments to the working-age population have been declining since the mid-1970s because of the lower birth rates of the 1960s, an increase in the number of workers reaching retirement age, and a rising mortality rate among males in the 25-to-44 age range.
    4. A third factor beyond the leadership's control was the continued escalation of the cost of extracting, refining, and transporting fuels and raw materials. Even though the Soviet Union is endowed with enormous quantities and a wide variety of raw materials, these materials in many instances have become increasingly inaccessible and the cost of exploiting them has risen sharply.

B. Some of the difficulties of the Soviet economy in 1981-82 were the result of deliberate policy choices. At a time when investment needs were rising rapidly, the 1981-85 Plan called for investment spending to grow by less than 2 percent per year.

    1. The marked slowdown, while partly forced upon the leadership by production constraints in the capital goods industries, also reflects a conscious attempt to switch to a more intensive pattern of growth--that is, growth through more efficient use of resources and more rapid technological progress.
    2. But the assumption that slower growth in investment

would be consistent with rising productivity did not prove out. Capital productivity in industry continued to decline at the same annual rate of 4 to 5 percent experienced in the last half of the 1970s.

3. Soviet planners also have made costly errors in allocating investment resources.
    a. In some cases, investment in large-scale capacities for improving the quality of raw materials such as iron ore has been emphasized at the cost of modernizing capacities for finished products.
    b. In other cases the planners have increased the Soviet capacity for manufacturing intermediate and finished products while neglecting to develop the raw material supplies essential to ensuring full use of that capacity.

C. Underlying all of the other factors tending to brake economic growth is the Soviet system of planning. Economic planning and management are highly centralized, with key resources allocated by administrative fiat.

1. As the economy has grown in size and complexity, it has become more difficult to manage. Moreover, as in previous plans, many of the key 1981-85 goals are unrealistic, based on projected productivity increases that cannot possibly be met.
2. The result is to intensify the pressure on lower level managers to protect themselves through such

practices as the hoarding of material and labor resources--and thus to aggravate already serious bottlenecks.

IV. As the first two years of the 1981-85 Plan neared completion, it must have become clear to Soviet leaders that their economic strategy was not working. Nonetheless, on the basis of information published on the 1983 plan and what has happened since, we conclude that Andropov is still holding mainly to the course set by Brezhnev. The possible exception is investment policy.

A. Because capital formation is so important in determining the directions of economic development, investment plans provide particularly useful clues to Soviet economic policy.

1. The investment policy laid down in the 1981-85 Plan called for the lowest rate of investment growth in the post-World War II era--about 1½ percent per year on average.

2. Investment was scheduled to rise by nearly 2½ percent in 1983, slightly above plan. But results for the first six months indicate that investment may be growing at a much faster rate. Incomplete returns indicate that investment increased by 6 percent compared with first half 1982.

3. The step-up in investment could signify a change in economic policy.

a. Indeed, the premise that increases in productivity required by the 1981-85 Plan are compatible with a slowing rate of investment has been challenged vigorously in the Soviet Union over the last two years.

b. The sharp increase in investment growth in first-half 1983 could mean that the proponents of higher investment spending are winning out.

B. Andropov's position on the share of resources that should go to the military is unclear.

1. In his November 1982 plenum speech, he stated only that "defense requirements as usual have been sufficiently taken into account." During a highly-publicized visit to a Moscow machine-tool factory, however, he implied that a healthy economy is a precondition of military power--suggesting that defense could no longer count on retaining unquestionable priority in the distribution of resources.

2. The little evidence that is available indicates Andropov has not accelerated Soviet military spending. For example, the leveling off of weapons procurement in recent years has been accompanied by an increase in the share of machinery alloted to civilian uses. That trend, as noted above, appears to have continued in both 1982 and 1983.

3. While we cannot be sure what Andropov's policy is, or will be, Soviet military capabilities will still

increase substantially over the next several years even if procurement of military hardware does not increase.

a. The USSR is already investing so much in military hardware that merely continuing procurement at the existing level would provide very large annual increments in holdings of military equipment. With level procurement, the Soviets, for example, have added substantial quantities of strategic and conventional weapon systems.

b. To put it another way, defense programs show that despite somewhat slower growth in recent years the costs of Soviet defense activities still exceed those of the United States by a large margin. In 1981 the dollar costs of Soviet defense activities were 45 percent greater than US outlays; procurement costs alone were also 45 percent larger.

C. There also are no indications of significant change in agricultural policy since Andropov took power.

1. Plans for crop production in 1983 have been set largely at the levels indicated originally in the 11th Five-Year Plan, and the General Secretary also appears to have thrown his full support to Brezhnev's Food Program.

2. Mikhail Gorbachev, the Soviet agricultural czar, has been lobbying hard for the more rapid and effective

implementation of the part of the program dealing with structural reorganization, which has been resisted by the ministries and state committees involved.

3. Andropov's support of the Food Program is also indicated by the continued large share of investment allocated to agriculture and the sectors supporting it in 1983--almost one-third.

D. The priority the leadership has given the Food Program mirrors an apparent high-level preoccupation with living standards. Judging from Soviet press reporting on Politburo meetings, for instance, the Andropov government has devoted more time to agriculture than any other domestic issue.

1. Aside from its agricultural policies, the new regime has shown concern for the welfare of the population by a flurry of decrees has been published this year calling for more attention to consumer-related programs.

2. The regime is also continuing the campaign initiated under Brezhnev to increase the production of consumer goods in heavy industry and may intend to import more machinery for use in consumer industries.

3. Nevertheless, the regime has little room for maneuver on consumer issues until the Food Program pays some return and until more investment can be spared for the production of soft goods and consumer durables.

4. In his June plenum speech, in fact, Andropov stressed that improvement in the standard of living will be slow. Increases in income, he has maintained on several occasions, must be closely linked to increases in labor productivity.

E. The foreign trade plan for 1983 suggests that Moscow still is bent on increasing trade with its Warsaw Pact partners and other Communist countries at the expense of trade with the West.

1. Eastern Europe, however, has reason to be suspicious of the renewed emphasis on intra-CEMA ties. The Soviets have already reduced oil exports to Eastern Europe, and it is unlikely that Soviet shipments of oil or other raw materials will increase in the future. Eastern Europe may also believe that, given the USSR's own economic problems, Soviet assistance--for example, credits in the form of large trade surpluses--will diminish.

2. The East Europeans--facing critical economic and financial problems of their own--will be neither willing nor able to provide the USSR much assistance in providing substitutes for imports from the West.

3. On the other hand, Moscow may be more willing now than in the past to squeeze Eastern Europe. Martial law appears to have controlled civil unrest in Poland, and there has been little overt discontent in any of the other East European countries despite

harder economic times.

F. The major new element of economic policy this year is the discipline campaign.

  1. Andropov does not believe that greater discipline alone will cure the economy's ills, but he sees it as a necessary beginning. He apparently is confident that coercion or the threat of coercion can increase worker discipline and that greater discipline will raise productivity.

  2. The campaign is designed to tighten discipline all around, including management discipline. Andropov has, in fact, fired some allegedly corrupt or incompetent officials.

  3. To date, however, the campaign appears to have been directed primarily against blue-collar workers. In particular, the regime has sought to compel workers to put in a full day's work.

  4. Another phase in the campaign was introduced this August. A new decree introduced sanctions (loss of vacation, loss of pay, and even dismissal) against workers AWOL or drunk on the job and offered financial rewards to more productive laborers. Judging from leadership statements, additional measures to reinforce labor's commitment to better job performance are likely to be forthcoming.

G. In the more ideological sensitive area of reforming the planning and management of the economy, the new regime has introduced some limited measures designed to decentralize decisionmaking in both industry and agriculture.

1. A mid-July joint party-government decree is the most comprehensive step in this direction to date. This "economic experiment" involves five industrial ministries and will begin in January 1984. The decree gives enterprise management more latitude in using investment and wage funds, largely in an effort to spur technological change and innovation. It also ties worker and management benefits more closely to enterprise performance, with contract fulfillment as a key success indicator.
2. Andropov's endorsement of small labor teams in industry and agriculture also qualifies as an attempt to increase local initiative in the decisionmaking process, this time at the lowest production level. The brigade organization of industrial labor and collective contract system for farm workers allows the enterprises increased flexibility but at the same time make profits and wages more dependent upon final results.

V. Turning now to the outlook for 1983, we believe that some of the economic pressures on the Andropov leadership should ease slightly this year.

A. Based on statistics available for the first seven months of 1983, we estimate that GNP will rise by 3.5 to 4 percent--well above the approximately 2-percent rate of growth achieved in both 1981 and 1982 and close to the 4-percent annual rate of growth implicit in the 1981-85 Plan.

1. All major sectors of the economy are doing better this year. After several years of steady decline, for example, industrial performance has begun to improve. Industrial production was almost 4 percent higher in the first seven months of 1983 than in the comparable period of 1982.
2. The rebound in industry probably owes much to the better than normal winter and spring weather conditions, which permitted some rebuilding of stocks of fuels and other inputs less in demand when the weather is mild. Most important, better weather appears to have eased transportation difficulties, thus relieving bottlenecks generally.
3. Other factors that have contributed to improved industrial performance include recent additions to capacity, notably in steel and chemicals; managerial personnel changes; and perhaps greater effort reflecting a sense that, with the change of leadership, a period of drift had ended.
4. In this connection, the discipline campaign probably played a part in the recovery from the poor performance of 1981-82.

B. On balance, however, the role of the Andropov administration in the industrial recovery seems to be minor. The production gains reported thus far reflect in large part recovery from the poor performance at the beginning of 1982.

1. Output of most industrial commodities actually began to pick up on a seasonally-adjusted basis in mid-1982, so that the overall contrast between the two years will not be so favorable to 1983 by yearend (figure 4).
2. We estimate that industrial production will grow about 3 percent this year, somewhat higher than the 2½ percent annual rate of growth achieved in 1981-82. Under Andropov, industrial production has returned to the growth path characteristic of 1978-82, not to the higher rates of earlier periods.

C. Following four consecutive years of poor agricultural performance a substantial recovery is in the cards for Soviet agriculture in 1983.

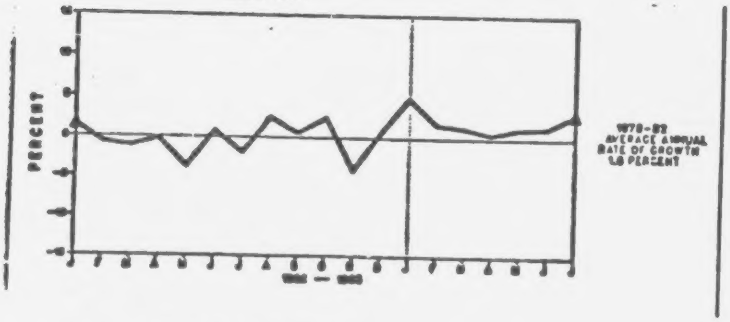
1. We expect total farm output to increase by about 7-8 percent compared with somewhat more than 3 percent in 1982 and almost no growth in 1981.
2. Barring a major deterioration in weather conditions, according to USDA, a grain harvest of 200 million tons is likely, the best crop since the 1978 record of 237 million tons. The outlook for other major crops is also good.

D. The new trend we have observed in military procurement,

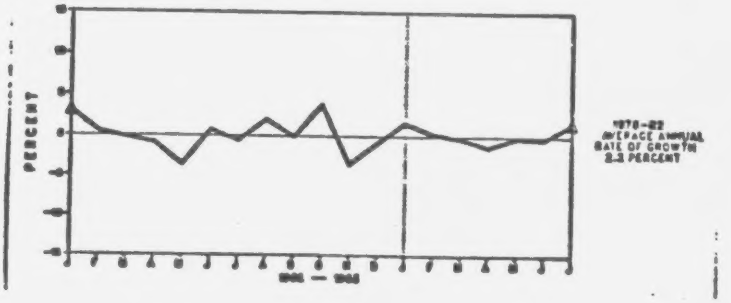
Figure 4

USSR: Deviation of Industrial Production From Recent Trend*

Civilian Industry



Fuels and Power



Industrial Materials

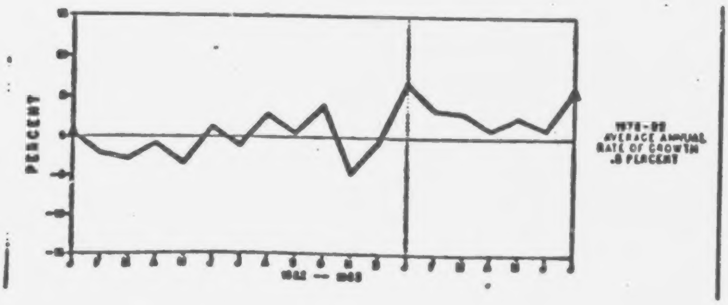
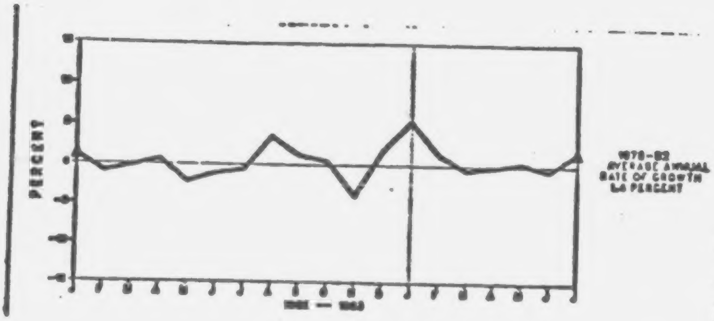
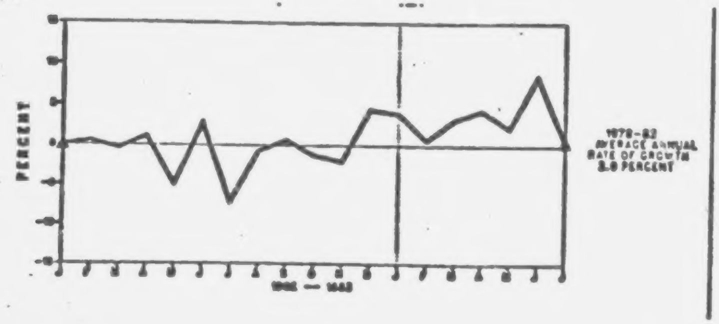


Figure 4 (cont.)

Civilian Machinery



Consumer Goods



* The monthly production indexes are calculated from a smaller sample of commodities than those represented in the annual production indexes. The average trend rate of growth shown for 1978-82 in this figure will therefore differ from those based on full-year data. Nevertheless, we believe that the samples used in extending the monthly indexes are comprehensive enough to signal changes in growth rates over time, or--as in this figure--to compare performance pre-Andropov and post-Andropov.

together with continuing domestic economic problems and the recent political succession, does raise important questions about the future of the Soviet defense effort.

1. We previously had estimated that defense spending would continue to grow in real terms through at least 1985.
2. We still consider that likely. The question is whether the Soviets will rebound from the procurement slowdown, so that defense spending will return to (or even exceed) the 4 to 5 -percent average annual growth rate of 1966-76, or whether much slower growth in procurement will slow the increase in overall expenditures for some time.
3. Because we do not fully understand the causes of the slowdown, we cannot provide a reliable answer.

E. The new regime, which apparently came to power with the support of the military, may well be under pressure to speed up defense spending to counter a resurgent Western military effort.

1. If a decision has been or is being made to open the defense spigot wider at the cost of squeezing civilian investment programs and the consumer, the Soviets can quickly increase the procurement of hardware already in production.
2. It would take time, however, for them to overcome the technical and manufacturing problems associated with the development of new weapon systems. As I said

earlier, these problems apparently have contributed to the recent procurement slowdown; some appear pervasive and will be difficult to correct.

3. Opening the spigot wider would also be costly. Any sharp acceleration of the level of military procurement will make it much more difficult for Moscow to solve its general economic problems and could over the long run erode the economic base of the military-industrial complex.
4. What is certain is that Andropov must soon decide how to approach the defense spending and resource allocation issue. The planning cycle for the 1986-90 Plan is already under way; Andropov has alluded to it a number of times in his recent speeches.

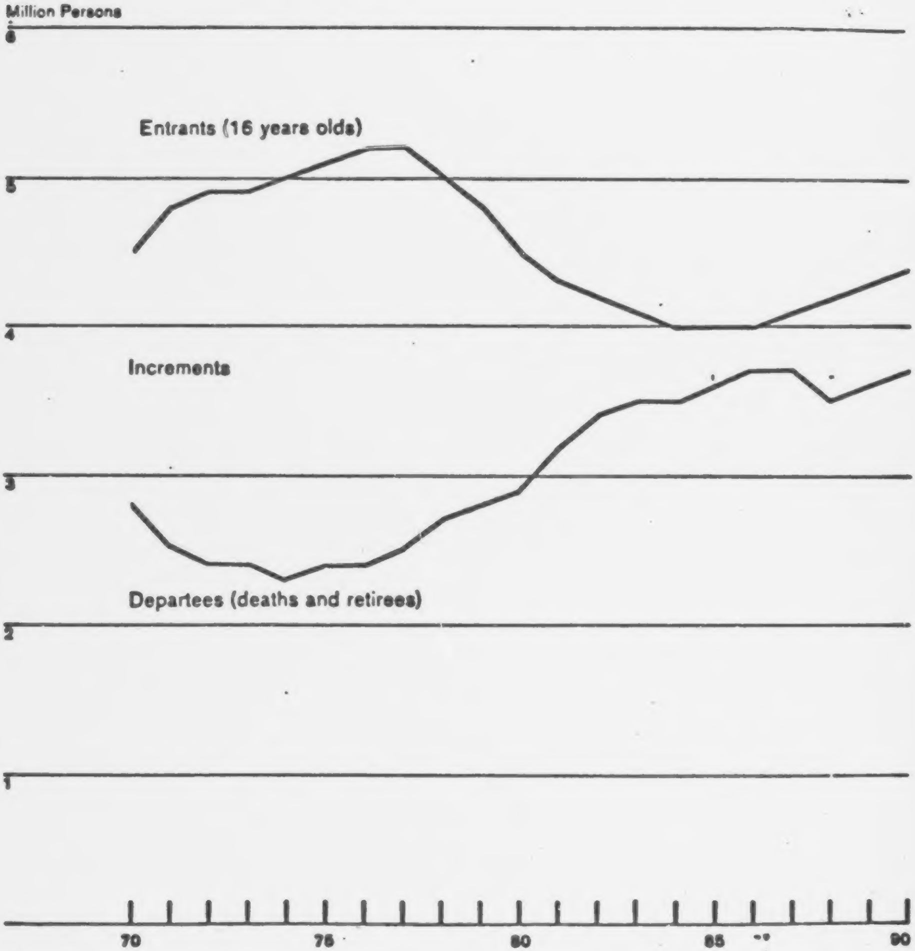
VI. A stronger economic showing this year would help Andropov politically, but it would not--in our view--foreshadow a higher growth rate over the longer term. The problems that have constrained growth since the late 1970s have not gone away; some of them, in fact, are just now reaching peak severity.

A. For example, the increment to the working age population--about 389,000 persons--will be lower this year than at any time in the last two decades (figure 5) and will continue to diminish through 1986.

1. Growth of the Soviet capital stock also will slow during the 1980s because of the slowdown in investment that has occurred since 1975.

Figure 5

USSR: Increments to the Working Age Population (Males 16-59, Females 16-54)



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2. Given the slower growth of labor and capital in the 1980s, long term growth would have to be sustained by increases in the combined productivity of labor and capital. A turnaround in productivity trends is not likely, however, without fundamental change in the economic system and until worker incentives are improved.

B. In addition, many of the unfavorable developments that have converged to slow industrial growth will continue to do so during the rest of 1980s. Because planned investment will be inadequate to add capacities needed for planned growth in output--especially in the extractive branches where both depletion rates and investment costs will continue to rise rapidly--shortages of raw materials and a deterioration in the quality of many materials are likely to continue.

C. In agriculture, Andropov faces the same problems as Brezhnev in improving agricultural efficiency: bureaucratic resistance to changes in organization, weak incentives for farm workers, insufficent skills in the farm labor force to manage production and to use and maintain machinery properly, and a lack of sufficient infrastructure (roads, storage areas and the like) in rural areas.

1. The greatest impediment, however, remains the failure to allow farms more freedom to make decisions at the local level about the composition of output and about

planting and harvesting schedules.

2. Thus, we estimate that, although Moscow is placing increasing emphasis on agricultural self-sufficiency, imports of 20-30 million tons of grain and 2-3 million tons of oilseeds and oilseed meal will be needed annually to support livestock expansion plans during the next several years, even with normal harvests.

D. On the other hand, we believe that the Soviet energy situation will not seriously constrain economic growth during the 1980s. This judgment is based on our latest study of the Soviet oil industry and our resulting reassessment of Soviet energy prospects into the 1990s. The principal conclusions of these two studies are as follows:

1. The combined output of oil, natural gas, and coal will increase by 10 to 12 percent in 1981-85 compared with the 17 percent planned for this period and the 22 percent achieved in 1976-80. In the latter half of the decade energy production will be about 6 percent greater than in 1981-85.

2. The Soviet Union has thus far averted the downturn in oil production that CIA had earlier predicted by virtue of an enormous development effort that has tapped a petroleum reserve base larger in size than we previously believed. The cost of doing this has been high, but we think that the Soviets have already

allocated enough investment resources to the oil industry to permit them to come close to their production target of 12.6 million b/d by 1985.

3. Because Moscow is likely to continue to increase the total amount of economic resources going to the oil industry during the 1986-90 Plan but at a slower rate, oil production probably will plateau by the middle of this decade and subsequently decline slowly to between 11 and 12 million b/d by 1990.

4. Meanwhile, assuming careful domestic fuel management, scheduled deliveries of gas to Western Europe through the new export pipeline, and continued pressure on other CEMA countries to reduce their dependence on Soviet oil, total unconstrained demand for Soviet oil should continue to hover between 12 and 13 million b/d through the rest of the 1980s.

5. All things considered, the energy picture implies a slight constraint on growth of the domestic economy, and, under a low scenario of energy output, reduced hard currency earnings as well.

E. The regime's present strategy for spurring efficiency to overcome the negative trends in the economy seems unequal to the task. In his public statements, for example, Andropov has harshly attacked the long-time practice of wage leveling because it conflicts with the priority the regime has assigned to raising labor productivity.

1. But long cultural conditioning in the work force and

the difficulty of reversing trends entrenched for the last 20 years will present substantial obstacles to broad use of increased wage differentials.

2. Serious obstacles also stand in the way of continued implementation of the discipline campaign. Public tolerance of a tough discipline drive 30 years after Stalin is likely to be tenuous and transitory. In the current labor market, moreover, management will be reluctant to crack down on workers, who can easily quit and find jobs elsewhere, often at higher pay. Firing workers also goes against the grain of Soviet doctrine, which guarantees a right to a job.

F. In our judgment, the regime will not be able to rely substantially on increased imports to relieve resource pressures in the domestic economy during this decade.

1. Our projections indicate that--barring another round of spiraling oil prices--Soviet hard currency purchasing power will not rise significantly through 1990. Consequently the USSR will have difficulty financing more than modest growth in hard currency imports unless it is willing to accept a sharp increase in its debt.

2. Western credits are one--and a relatively immediate--means of financing additional hard currency imports. But Soviet debt management policy would first have to become less conservative, and Western governments would probably have to provide

significantly greater encouragement and guarantees to Western banks.

3. Nor will the Soviets be able to go much further in reducing net exports to Eastern Europe. Most East European countries are struggling to sustain some positive growth in GNP while putting their hard currency balances in order.

G. The regime could improve the performance of the economy in a number of ways.

1. Some investment resources, for instance, could be redirected to sectors where their payoff is greater than at the present time. The current investment plan is lopsided and lacks balance; it stresses development of energy and agriculture at the expense of other sectors also vital to economic growth.

2. A greater return could probably be achieved by shifting more investment to such sectors as machinebuilding, transportation, and ferrous metals. Finally, holding down growth in defense spending would free up resources that could be used to bolster the civilian economy.

3. Some gains could be achieved also by identifying those areas in the economy where mismanagement and administrative efficiency are worst and replacing the managers responsible at all levels with more competent people. Indeed, Andropov has brought in a somwehat more innovative and more disciplined set of

officials to various sectors of the economy.

H. The greatest potential for reviving economic growth, however, lies in more "radical" measures that would alter Soviet economic mechanisms. Indeed, unless the system changes to promote innovation or managerial initiative, a new generation of administrators would probably fall back into the practices of their predecessors.

   1. While we believe that caution and conservatism characterize Andropov's approach to economic change, we cannot rule out the possibility that he might yet introduce more innovative economic programs.
   2. Andropov's freedom of action in his first year as General Secretary probably has been restricted. He is bound by an annual economic plan made before Brezhnev's death and he is still much indebted to those who helped elevate him to power.

I. The major constraint, however, in changing the Soviet economic system is that Andropov and the rest of the leadership--for compelling cultural, economic, and political reasons--will not dismantle the command economy and replace it with some form of market socialism.

   1. A planned economy is all Soviet leaders have ever known. They do not understand the economic rationale for markets and believe that, however efficiently markets may operate at the enterprise level, they necessarily produce chaotic results on a economy-wide scale.

2. Consequently, Andropov is likely to rely primarily on Brezhnev's legacy of programs and proposals for change worked out between 1978 and 1982.
3. We are likely to see an increase in the number and variety of reform proposals like the recently-announced economic experiment. In his 15 August speech, Andropov said that changes would be made before the start of the 1986-90 Plan but that they would be undertaken carefully and only after unhurried evaluation of large scale experiments. In addition, a high level committee under the leadership of new Central Committee Secretary Nikolay Ryzhkov was formed earlier this year to review the party's options for changing the economic system and given a year or more to report back.
4. Given the emphasis on study and small-scale experiments, we think that reforms of organization and management will have little impact on the economy during the next few years. Indeed, the improved performance in 1983 may even reduce the pressure for economic change in the short run.

J. As we stressed in last December's testimony, however--and as a prospective growth rate of about 2 percent a year implies--the Soviet economy remains viable. Furthermore, the strains on that economy may be somewhat less severe than we thought a year ago.

1. First, the outlook for oil production looks less unfavorable. To recapitulate, we now expect that production will hold roughly steady through the mid-1980s and then will fall only gradually through 1990.
2. Second, we have revised downward our estimates of how fast defense spending has been growing, implying greater availability of resources for other uses than we had estimated earlier.

Senator **Proxmire**. Thank you very much, Chairman Gates.

RELIABILITY OF SOVIET STATISTICS

Chairman Gates, I would like to ask a rather basic question before getting into the substance of your testimony.

The renewal of Soviet growth this year comes at a conspicuously convenient time for the leadership of the Soviet Union. After all, they have got a new leadership. They want to show they are doing well. China's economy has rebounded somewhat, and they are competing in the Communist world with China. It would not look good if they had a new leadership and they had no growth or little growth, whereas China was moving ahead so rapidly.

The United States is in a strong recovery. What I am getting at is the possibility of having figures cooked. I have been always suspicious of figures being cooked in this country. I do not think they are, because I have gone into this in considerable detail. It would be very hard to do it and very long. But in a Communist totalitarian dictatorship, it seems to me that cocking the figures is much, much easier than it would be in our system. We have a probing press and Congress and so forth.

Does the intelligence community have a way of verifying official Soviet economic statistics, or are you dependent for your knowledge about the Soviet economic performance on what they tell us? And if so, is there any possibility that the current surge is the result of statistical manipulation? Could this be a Potemkin economy?

Mr. **Gates**. Mr. Chairman, let me make a couple of general observations and then ask Mr. Noren to address the issue of the validity of the statistics that we use. It strikes me that the improvement in the performance of the Soviet economy is consistent with a couple of developments that would have been very difficult for the Soviets to invent.

It stands to reason that the Soviet economy would show some improvement, in part due to the impact of good weather on agriculture, and second, the effect of a mild winter last winter. There is no question but what the good weather and good luck have permitted the Soviets to have better than usual harvest this year, for example. By the same token, as mentioned in the testimony, a mild winter alleviated certain problems in the transportation sector, it allowed the Soviets to overcome some energy scarcity problems that they had in the preceding couple of years. So I think that those two aspects are fairly fundamental and underscore, as anyone in political life appreciates, the importance of luck.

The other consideration that I would point out is the value of the symbolism of a new leadership itself and the very tough approach that Andropov has taken on the discipline. He clearly has had an impact at a number of different levels. We do not think it is one that can be sustained, but I do not think anyone at this table doubts that there have been some real short-term benefits from the application of the discipline campaign, in terms of both people both working harder, and in terms of being at the workplace and putting forth full effort.

But with those general comments, let me ask——

CAUSES OF IMPROVED PERFORMANCE

Senator **Proxmire**. Before you yield, let me ask you, how much of this improvement—what proportion is the result of good weather, good crops? I understood you to say something about a 3-percent improvement. Was that 1982?

Mr. **Gates**. Jim.

Mr. **Noren**. The improvement is from 2-percent growth in GNP in 1982. We expect GNP to grow by 3½ percent to 4 percent this year.

Senator **Proxmire**. I am talking about strictly the improvement in the crop performance.

Mr. **Noren**. All right, as for agricultural output, we expect it to increase about 7 percent, 8 percent this year.

Senator **Proxmire**. 7 or 8 percent, I see.

Mr. **Noren**. Insofar as we could allocate the reasons for the increase in GNP, the effect of higher agricultural production probably would be in the range of three-fourths of the——

Senator **Proxmire**. Three-fourths of the GNP was a result of the improved crops, better weather, and so forth?

Mr. **Noren**. The increase in agricultural production—the 6 or 7 percent—would be the result of much better weather.

Senator **Proxmire**. And about 25 percent or one-fourth, the result of rhetoric and——

Mr. **Noren**. Rhetoric, the Andropov initiatives.

Senator **Proxmire**. It is hard to understand that. It really is. You know, we are always asking people to work harder and so forth. That is kind of routine, is it not, in the Soviet Union, too? Do they not have—whether it is Brezhnev, or whoever it is, saying: "Come on, fellows you have got to work harder. We want more discipline. Come to work every day. Do not report drunk," and so forth. They have been singing that song year after year, and why should it get such results in 1982?

Mr. **Noren**. I think the difference is that, as you say, Brezhnev had been singing that song in the latter part of his administration. But when Andropov came in, he did something about it. He had the militia checking the stores, checking the movie houses, driving people out. He had the supervisors in the factories made responsible if people under their employ were not at work. Then, I think within a relatively few months, late December, January, February, that approach was thoroughly disseminated.

Senator **Proxmire**. What do they do if somebody is not at work, they are absent? In this country, I presume they just get docked pay for that day. Is that what they do there too?

Mr. **Noren**. They dock the pay, and under some of the supplementary measures that they have introduced, you can take away some of their privileges, one of them being the length of their vacation, the admission to certain resorts, the right to change jobs. If someone has been absent, they can now deny him the right to change jobs for a period of 6 months.

LABOR MOBILITY

Senator **Proxmire**. I want to ask you gentlemen about that. You said that in the current labor market—this kind of surprised me—it did not shock me exactly, but it surprised me. You said in the current labor market in the Soviet Union managers would be reluctant to crack down on worker discipline, because workers can easily quit and find jobs elsewhere, often at higher pay.

That is something that I did not appreciate. I did not realize they had that freedom of movement and job mobility. Do workers have that in the Soviet Union? Can they just quit jobs and find them elsewhere at will, or are they restricted in where they can go and the type of job they can change.

Mr. **Noren**. Up to several months ago, it was a common practice to quit a job and find a better one. The enterprise hiring a new worker was eager to have him. What the Andropov administration is trying to do is to introduce some barriers to this movement, mainly through requiring someone to stay on the job for 6 months and also by penalizing enterprises that try to pirate workers away from other enterprises.

CHINESE UNEMPLOYMENT

Senator **Proxmire**. Now I notice in your—I am going to largely question in this round or the next couple of rounds on the Soviet Union but I—because this relates also to the Chinese situation—I wonder if you could explain to me about this urban Chinese unemployment being as high as 10 percent in the cities. That just seems to be a contradiction of Marxist doctrine, dogma, practice, and everything we had been led to expect about Communist economies. They just did not have unemployment. An unemployment of 10 percent, I think you said in your presentation.

Mr. **Phillips**. Mr. Chairman, setting a figure, a rate on Chinese unemployment is difficult at best. The Chinese have talked about figures of 4, 5, 6, 7, or 8 percent. They do not refer to it as unemployment. They refer to it as people who are awaiting jobs. There is no term "unemployment," except in some academic essays there. But we feel that, in spite of the fact that the regime in the past 4 or 5 years has done a lot to pick up the backlog of the previous 10 or 15 years, people that had floated into cities, some illegally, some legally—in spite of the fact that they have done a lot to pick up this backlog, there still is a substantial group of people in urban areas who are unemployed. Some of them are in the cities illegally. Some of them are—some of them are waiting until their job assignment comes up. They may have graduated from school this year, but they are not going to be given jobs until next year or the year after. The problem is not serious at the moment, in that we feel that it is still under control.

The idea of setting a 10-percent figure is that this is about the highest of the ranges that the Chinese have mentioned, when they talk about people still awaiting jobs in urban areas.

Senator **Proxmire**. Can you give us any idea of what it would be for the—of course, China is so colossal with 1 billion people. Can you give us some notion of what their overall economic—I mean, unemployment figure would be compared to ours?

Mr. **Phillips**. A rule of thumb is that 300 million people are employed in the agricultural labor force, another 100 million in nonagricultural jobs. If 100 million are in urban areas and the unemployment rate is running to about 10 percent, then you are talking about 9 million, 10 million young people.

Senator **Proxmire**. They have 300 million, three-fourths of their people in what you call the agricultural labor force?

Mr. **Phillips**. There are about 850 million people of the 1 billion people living in rural areas, and of those 850 million about 300 to 350 millions, somewhere in that range, are employed in agricultural-related activity in rural areas. There are another 100 million people employed in nonagricultural activities, for all practical purposes, urban employment.

So when we say 10 percent, we are talking about 10 percent of 100 million people.

If your question was, how many people are we talking about being unemployed in urban areas, the figure would be 9 million, to 10 million people.

Was that your question?

Senator **Proxmire**. So the remainder of the people—you talk about 300 million and 100 million. The remainder of the people, I take it, are children, or elderly, or institutionalized, or whatever?

Mr. **Phillips**. The age structure of the Chinese economy is such that there are many, many young people around. So that when we say that about 400, 450 million people are employed, the remainder are either beyond the employable age or too young.

Senator **Proxmire**. I am going to get into questions on defense spending, but I will yield at this point to Congressman Wylie.

Representative **Wylie**. Thank you very much, Mr. Chairman, I have had a busy morning, but I wanted to come to this hearing, because I thought it might be fascinating and there might be some information to help us make some of the decisions we have to make.

ANDROPOV INITIATIVES

What do you think of Mr. Andropov's proposal for economic modernization?

Mr. **Gates**. Let me address it generally and then ask Mr. Noren to comment specifically. I think one of the things that has struck us has been, apart from the discipline campaign, the relatively cautious approach that he has taken, in light of the problems that he faces.

Here is a leader that we believe came into office, at least in some part, because of a general recognition on the part of the other leaders, that the stagnation of the Brezhnev period had to be ended, and that there were serious problems inside the Soviet Union that needed to be addressed. Once they got beyond the consensus on that point, however, we believe that the leadership is still riven with divisions about the best approach in dealing with those economic problems. And our view is that Andropov at this point has still not been able to gather behind him a sufficient number of people in the Politburo to push through any kind of radical change or even any kind of significant economic reform or change in the system.

We think he has some ideas on that. We have watched with some interest and care his views and comments on the Hungarian experiments, and so on. He has appointed these study groups. He has had people looking at broader options for dealing with the economic problems, but so far, in terms of action, he has moved very slowly and very cautiously. But in terms of what he actually has done in that respect, let me ask Jim to address that in some detail.

Mr. **Noren**. Well, I think it is true, he has been very cautious in his approach. A prime example of that is the economic experiment that has attracted the most publicity, and that is one that is to be instituted in selected industries, I think, five, and in a few republics beginning next January. The measure really is a continuation of the kind of experimentation that Brezhnev introduced. In fact, it is to be considered as a follow-on to the decrees on planning and management of July 1979. It attempts to reduce a few of the plan indicators. It attempts to heighten the emphasis given to contract fulfillment. It gives the enterprises a little more freedom in terms of retaining their own earnings and spending on investment projects that they deem advisable.

But this kind of experiment has been tried repeatedly. The problem is, you try experiments on a very limited basis, you give the enterprise the freedom to carry out some of their own investment. It is very difficult to make a place for that kind of investment in the broader planned economy.

It is very difficult for the enterprise which has some money to spend and wants to make its own decisions to get the materials and investment resources to carry out the investment. This is the sort of dilemma that reforms in the past have run up against. And it is one that this one will have to contend with as well.

Representative **Wylie**. His new idea or proposal is centered sort of around an incentive system, is it not, so that those who produce more will gain more from their production?

Mr. **Noren**. Yes, in a number of articles and in some of his speeches he has emphasized this. We still have not seen any wage reform that would, in fact, introduce that idea on a wide scale. There is some experimentation in industry, introducing something called the brigade system, in which you break down the work in the factory into smaller units. A foreman is selected jointly by the workers and the factory management, and brigade members are supposed to plan their work, in terms of who does what, make suggestions for better administration of the work, and also have some say in how the proceeds, the pay is to be distributed. That is still a very small experiment at this time.

Representative **Wylie**. Do you think it is just talk to impress the rest of the world and maybe to have some psychological effect on some of the workers, or is there some major groundbreaking taking place here?

Mr. **Noren**. He is very serious about this proposal to, in effect, widen wage differentials so as to make them a bigger factor in incentives for the labor force. And it was a bigger factor at times under Stalin. I think they are, as I say, serious, and I think something will come out of it.

GRAIN SALES

Representative **Wylie**. There are a lot of cross currents, as you know, since the shooting down of the KAL commercial airliner, and for a time it seemed as if we might be able to talk business with the Soviets about peace in the world and that sort of thing. Right now, of course, the talk is much more hard-nosed than that in the United States. And we saw that with the defense authorization bill the other day, whereas it passed by a close vote in the House, the first time we came back from conference, it was not all that different, it passed by a rather big margin.

What is the significance of the grain sale to the Soviet economy, and I say that, because in some of the hard talk that we hear, there is some suggestion that we ought to cut off the grain sales that we are helping in their economy, at the present time, and that is just making them stronger for a long-term pull of our own national security and their security.

What is the significance of the grain sales, to the Soviet economy?

Mr. GATES. Well, this year because of their relatively good harvest, projected at 200 million tons, the Soviets will not need to come into the international grain market to the extent they have in the past. I think it is important to realize that Soviet purchases of foreign grain are closely related to their meat program. The Soviets are not buying, if you will, bread from the West. They are buying feed grain for their herds, so that they can increase the amount of meat available to the population.

Because of the good harvest this year, and I think Mr. Noren can probably provide you the specifics when I am done here, their import requirement will be less than it has been in the past 4 years; however, if you look back over the past 10 or 15 years, or even the last 100 years of Russian history, it is one of periodic good harvests punctuated by one disastrous harvest after another. So that one can project with some confidence that in subsequent years there will be a requirement for the Soviets to come back into the international market for substantially more grain.

That said, however, one has to take into account the alternative arrangements the Soviet Union made as an outgrowth of the U.S. grain embargo imposed after the invasion of Afghanistan. The Soviet Union has made arrangements, long-term grain agreements with other States, and to a very considerable extent can satisfy its requirement for imports from non-U.S. sources.

Let me ask Mr. Noren to add to that.

Mr. NOREN. We project this year, in the crop year July–June, that the Soviets will import 25 to 30 million tons of grain. That amount we believe they could get entirely from non-U.S. sources, although they are committed under the new long-term agreement to buy at least 8 million tons of U.S. grain before October 1984.

A few years ago in the 1981–82 crop year, they imported about 46 million tons. We think, as Mr. Gates said, that from time to time, harvest conditions will be such that they will need to import in the range of 40 to 50 million tons, and in those years, U.S. supplies will be important.

Over the longer run, we think that if they continue with the meat program, the livestock program, they will need on a continuing basis 20 to 30 million tons of grain per year. Imports of that magnitude, they certainly could get from non-U.S. sources unless there is really a bad crop in Argentina, Canada, and some other countries.

Representative WYLIE. I understand that you want to intervene at this point, Mr. Chairman.

CAUSES AND EFFECTS OF DEFENSE SLOWDOWN

Senator PROXMIRE. Chairman Gates, in previous hearings I have discussed with your predecessors the potential effects of reduced Soviet defense spending on the Soviet economy.

The immediate medium-term effects of reduced defense outlays have always been described as rather marginal. That is, if they cut down on defense, it will not stimulate the economy that much, with potentially greater effects over the long term. Now that the CIA has revised its estimates of Soviet defense costs and concludes that there has been a slowdown in the growth rate of total defense and a leveling off of procurement of military hardware since 1976, I wonder if we may be seeing some of the effects of that in the improved economic performance in the Soviet Union.

Can you discuss that?

Mr. GATES. Let me address it, again, generally, and then ask Mr. Licari and Mr. Noren to contribute.

The slowdown in Soviet procurement growth has accompanied a general slowing of growth in the Soviet economy. As I mention in the submission and also in the summary, as a percentage of GNP, defense spending has remained about constant at 13 to 14 percent for a decade or more. So at this point, as far as we can tell, there is no major dividend from reduced defense spending that has become available to the Soviets for investment in other areas.

What the Soviets now face is a choice in terms of future allocations, whether to reduce further the growth in defense in order to make additional investments in other parts of the economy. I might add that it is my personal view that the military itself is probably divided on this issue, and it would be divided along the following lines:

Some in the Soviet military probably understand that their long-term——

Senator PROXMIRE. Let me just interrupt to say that—you see, I am a little puzzled. It seems to me that they have slowed down their procurement, which is the main competitor, it would seem to me with the nonmilitary sector, and there has been growth. So why would there not be some kind of a dividend, in that sense?

Mr. GATES. Well, we have not seen any appreciable recovery in economic growth until this year.

Senator PROXMIRE. Is there not a dividend this year?

Mr. GATES. It is conceivable that there might be, but frankly, I think it is too soon for us to be able to detect anything like that resulting from resources being diverted from defense.

Representative WYLIE. If the chairman would yield on that point.

Senator PROXMIRE. Surely.

Representative WYLIE. You say there is a slowing down of the rate of growth in defense spending, and then you say that the percentage of GNP devoted to defense has remained constant, though, at about 13 to 14 percent. That seems inconsistent to me.

Mr. GATES. There has been a declining rate of growth in the GNP as a whole.

Representative **Wylie**. Oh.

Mr. **Gates**. So rates of growth of both defense and GNP have been declining together.

I might point out that, as the submission makes clear, to the extent there has been a decline in the rate of growth in procurement, I think our judgment is that a desire or a decision on the part of the Soviet leaders to reduce investment in defense spending is not the principal factor involved. Other problems in the economy—the fact that they cannot devote enough industrial materials and investment resources to maintain the rate of growth in procurement, and the problems they are having developing and producing high-technology weapons are also important factors.

As I was saying, though, it seems to me that there probably is a division in the military among those who wish to maximize current spending on defense and, therefore, make a strong bid to restore the traditional rate of growth in procurement, and those who may see that their longer-term capability to compete with the United States depends on restoring and improving the essential strength of the economy itself, the steel industry, cement industry, the railroads, and so on. Unless some of the problems in these industries are corrected, their long-term ability to compete with the United States is going to be damaged. So I think that there probably will be—or may well be some divisions in the military along those lines.

Let me ask Mr. Licari to amplify.

Mr. **Licari**. Sir, let me just add two points to Mr. Gates' comment. First, I think, is to go back to our discussion about the improved growth prospects for this year and emphasize that the rebound effect dominates, in our view——

Senator **Proxmire**. What do you mean by the rebound effect?

Mr. **Licari**. The rebound effect would dominate in terms of understanding the improved growth prospects this year. I do not think we are talking about a change in the trend of growth, either returning to earlier trends or raising the trend in growth for the Soviet economy. We are emphasizing a short-term movement from what was a rather depressed rate of growth last year, primarily because of bad weather affecting both industry and agriculture to what might be a more normal rate of activity for the economy as a whole. I do not think we can associate that rebound effect with the shifting of resources among sectors in the economy.

The second point I wanted to add goes back to the procurement question, and our new estimate which suggests a flattening in the level of procurement. First, it is important to emphasize that procurement remains very high. We are not talking about procurement levels falling. So the drain on resources—machinery, in particular—into procurement remains very high. Second, even if there has been a stretchout in some programs to ease the burden somewhat on the machinery sector, it takes a long time for additional machinery devoted to civilian uses to work its way into production. We are talking about gestation periods here of several years before new plant and equipment becomes really fully productive.

I think, therefore, that even if we were to hypothesize some easing of the drain on machinery production to defense and some shifting to civilian uses, it would be too early to see it in growth performance in 1983.

DELAY IN IDENTIFYING NEW TREND

Senator **Proxmire**. Now let me put some numbers on this, and maybe I can get a better understanding. In the first place, let me say, is there some way that the tracking of Soviet defense trends can be transmitted more swiftly to the Congress? If Soviet military procurement has been level since 1976 and the growth rate of total defense has been cut in half, should not the Congress have been made aware of this before now?

Mr. **Gates**. Mr. Chairman, we, ourselves, did not come to appreciate the implications of this development until this year. In our earlier assessments, we had characterized much of the decline in the rate of growth in procurement since the mid-seventies as part of the cyclical effect of making the transition from one generation of weapon systems to another, and that we were in the trough, if you will, of one of those cycles.

As I say, it has only been within the last 6 to 8 months that we in the community, and particularly we in the CIA, have come to believe that something more significant was happening here.

I should add, as I acknowledged at the outset, this is the view of CIA at this point. We have spent a number of months working these figures with the Defense Intelligence Agency to identify areas where we share similar perceptions as well as those where our assessments differ.

So there really has been no delay in informing the Congress of this. The materials that have been published this summer by the Agency really represent the first time that this case has been articulated.

Senator **Proxmire**. But here you have a situation where in 1976 there was a GNP growth of about 4 percent in the Soviet Union. In 1977 and 1978, it was about 3 percent; in 1979 and 1980, about 1 percent; and in 1981 and 1982, about 2 percent. And now in 1983 you expect it to be about 3½ percent. Over all those years the growth of defense procurement has been about zero. It seems to me that is a significant policy shift in the Soviet Union, and also it does seem to me to indicate a very important difference that we should have been made aware of. I realize the DIA has a different view on the Soviet military buildup.

Mr. **Gates**. Joe.

Mr. **Licari**. Senator, let me mention several points that relate to the issue that you are raising.

Senator **Proxmire**. Before you do that, let me say there are reasons why I think that the CIA estimate is more plausible than that of the DIA. In the first place, the DIA has an ax to grind. It is the Defense Department. They always like to make the Russians 10 feet tall. In the second place, they do not allow for inflation, and you do. It seems to me that if we want a more precise and accurate estimate, we should allow for inflation.

Go ahead.

Mr. **Licari**. In the estimate that existed a year ago we had observed some flattening of procurement in the mid-to-late 1970's, but we had expected a normal cyclical return to faster growth in the following years, a procurement cycle, in a sense. Work done in the summer of 1982 and the fall of 1983, suggested that this was not occurring, for a variety of reasons. Our expectations had proven wrong. And as Mr. Gates is saying, as the story developed over the past year we did try to communicate elements of this story to various people in the community and in Congress as well. While we had observed some tailing off in the rate of growth of procurement going back to the mid-1970's, we expected a cyclical upturn. But we have not seen an upturn in the late 1970's or early 1980's.

We are attributing its absence to several factors. We cannot say what the relative importance of these factors is: technological problems in R&D; technological problems in serial production of very complex weapons: economic bottlenecks; an inability to insulate defense from these kinds of difficulties as much as in the past; and perhaps even policy decisions, either broad-based policy decisions or very particular ones connected, for instance, to SALT I and SALT II treaty issues.

As I said the beginnings of this change were observed in our previous assessments but we were not aware of the extent of the changes until the work done over the last year.

Senator PROXMIRE. My time is up. Congressman Wylie.

Representative WYLIE. Thank you, Mr. Chairman.

INCREASE IN MILITARY SPENDING

I would like to follow up on the questions asked a little earlier, which I think are important, about the CIA estimates as to the rate of growth of defense spending in the Soviet Union. You have indicated that it has perhaps declined and that defense spending has remained fairly constant as a percentage of GNP. I was in on a meeting or briefing with the Secretary of the Navy this morning in which we were getting different signals, or at least it is confusing to me. What I heard there is that the actual amount of money which the Soviet Union is spending for defense is going up.

Mr. GATES. Yes, sir. That is accurate. Even if our findings are completely accurate with regard to the flattening in the rate of growth in procurement, we still estimate that total defense spending has increased by 2 percent per year on average since the mid-1970's. And a couple of comments made in the summary are probably worth repeating here. First of all, we are still talking about a Soviet effort that still is running between 13 and 14 percent of GNP, that is over twice the percentage of GNP devoted to defense spending in the United States. Finally, the committee was reminded that the level of procurement, even though it has flattened, is still 45 percent higher than that in the United States. So even if the Soviet rate of growth in defense spending is only 2 percent, or if procurement is virtually flat, the amount of resources that the Soviet Union is investing in defense is still such that they will be able to make enormous additions to their military forces and to achieve substantial modernization of those forces during the remainder of this decade.

MILITARY THREAT

Representative WYLIE. So we do not want to feel that the Soviet military threat to the United States has declined.

Mr. **Gates**. Not in the slightest. These figures do not give a picture of capabilities of forces, either actual or potential. They are meant to suggest levels of effort, or levels of emphasis in Soviet defense investment, for example. For capabilities, you need to look at what they are buying with money they are spending. And that was what I was referring to when I said that during the period since 1976, when we have seen a slower rate of growth of real defense spending, we are still looking at a Soviet Union that has purchased over 2,000 strategic ballistic missiles, 60-some strategic ballistic and attack submarines, 5,000 combat interceptor and tactical aircraft, and so forth.

The resources that they are devoting to defense are enormous. The dollar costs of Soviet procurement and total Soviet military activities were both about 45 percent higher than their U.S. counterparts.

Representative **Wylie**. Well. I think that is a key point, and I think that we wanted to make it very clear for the record that, even though there might have been a decline in the growth of Soviet GNP that still does not give us any hope as to the goal or aim of the Soviet Union vis-a-vis their military threat. And I think that that needed to be put in the record at this point.

PETROLEUM ESTIMATES

I understand the Soviets increased their petroleum exports by something like 15 percent last year; is that correct?

Mr. **Haus**. Yes, on that order to their hard currency customers.

Representative **Wylie**. How can the Soviets increase their petroleum exports, when we have been hearing for years that their petroleum resources have been going down? What are the implications of that or who is being squeezed, and where are the petroleum exports coming from?

Mr. **Haus**. Well, let me answer in the following way: It is really a two-part question—it needs a two-part answer.

They have been getting additional oil for export this year and last year, really, from two sources. The first source is by increased production. Soviet oil production has been growing at around 1 percent a year since the late 1970's. The second source, however, is by some degree of success in slowing down the rate of growth in consumption at home. They have also opened up additional oil for the market, for the hard currency market, simply by squeezing—cutting down—on the rate of growth of shipments to their Eastern European client states.

The real answer to your question, however, and one that I think is clear in the submission, is that our estimate of the Soviet oil situation has changed a bit. It has been in transition for several years now. We just completed a fairly extensive study that took up about a year and a half—a complete top-to-bottom look at what the Soviet situation is. We have revised some of our previous judgments. Basically, in the 1970's, in the late 1970's, when we would have done our original work, we concluded that the Soviets were running out of reserves, at least accessible reserves, and probably would be unable to continue the high rate of effort that they had been making up to that point. That judgment was largely based on what the Soviets were saying themselves in the press and in a variety of unclassified sources.

Since the early 1980's, [security deletion] we have changed our minds about several things. Principally, we now believe that the Soviets do have substantial oil reserves, do have a large enough reserve base to permit them to see petroleum production grow for several more years, perhaps through the end of this decade, if they are able to make the effort. Now that is a major change. And it is largely based on new data and the application of different types of techniques that just simply were not available to us in the late 1970's.

The second thing that has happened, however, is that the Soviet leadership did make the conscious decision around 1977 or 1978, possibly in part spurred by the press the Agency's estimate had received, to commit the resources that were needed. They continue to do this, and this accounts for a large part of the growth that we are now seeing, admittedly, it is very halting growth compared to past years, but it has been the result of the Soviets making the effort particularly in terms of investment in drilling in a big way.

REVENUE FROM ENERGY EXPORTS

Representative WYLIE. Well, I think it is important to get that on the record, Mr. Chairman, because, as I understand it, roughly two-thirds of the Soviets' hard currency income in recent years has come from oil exports. Is that fairly accurate?

Mr. NOREN. Oil and gas. About 50 percent of hard currency receipts last year.

Representative WYLIE. Oil and gas, and that brings up the new pipeline which—how will that relate to the question of oil and the production of it when it comes in next year, in the Soviet economy, in general?

Mr. HAUS. When the pipeline comes on line—and assuming the Western Europeans take all the gas to which they are entitled—it will, in fact, permit the Soviets to earn a substantial amount, though I do not have the exact figure on the tip of my tongue. It would depend, of course, on the price of oil and gas at that time. But it would, roughly, at current price levels permit them to replace the earnings from one-third of their current oil hard currency exports with gas. So it will be significant.

Representative WYLIE. So, in other words, the Soviets are paying for grain, corn from Iowa, by selling oil to the Germans and French, and next year they will be paying for it by selling gas to the Germans and French. Right?

Mr. HAUS. That is correct.

CIA AND DIA ESTIMATES COMPARED

Representative WYLIE. OK. Are there still major differences between the CIA and DIA estimates of Soviet petroleum reserves?

Mr. HAUS. Yes, there are. Let me back up a moment on that. DIA essentially agrees with our estimates of Soviet petroleum proved reserves, at this time. The difference between the DIA and CIA lies in their assessment—DIA's assessment—of the level of the effort the Soviet are going to be willing and able to make to tap those reserves over the rest of this decade. Our economists see a bit of a squeeze and a series of hard choices that the Soviet leadership is going to have to make. We believe that the Soviets will probably take advantage of the gas sales coming on line to hold down the growth in investment in the oil industry which will make oil production drop a bit. The Defense Intelligence Agency, however, believes that the Soviets will continue to make whatever effort is necessary to keep oil production growing.

We are talking about those differences, and I think they have been narrowed somewhat over the past year or two, but they are still there.

BAM RAILROAD

Representative **WYLIE**. I understand the Baikal-Amur Railroad in East Siberia is due to come on line very soon or due to be completed very soon. Will this railroad generate hard currency for the Soviet Union?

Mr. **NOREN**. It will, eventually, sir. What it requires now that they will have the main trunk line, it requires the development of feeder lines going north into the resource-rich region and development of some of the mineral deposits. We think that will be a factor in the 1990's, but not in the 1980's.

Representative **WYLIE**. Will that affect the Soviet relations with China vis-a-vis trade?

Mr. **NOREN**. It is bound to. It is bound to, sir.

Representative **WYLIE**. For economic, as well as military purposes?

Mr. **NOREN**. Well, it is—I think we have believed since the beginning that the line had a military purpose as well as an economic purpose. But the development of resources in the Far East and in East Siberia is going to be a factor in Soviet trade with China and Japan, as well.

Representative **WYLIE**. Thank you very much, Mr. Chairman.

MILITARY SPENDING AND EFFECTIVENESS

Senator **PROXMIRE**. Mr. Gates, the fact is, if it is a fact—at least that is the position of the CIA—that the U.S.S.R. is spending 45 percent more in dollars and 25 percent more in rubles than we are in procurement, in total military spending, but that does not mean that they are necessarily buying 45 percent or 25 percent or any more military effectiveness, does it? There is no way you can measure that. Some people allege, they may or may not be right, that the Soviet Union lacks discipline, its troops lack discipline, the leadership is poor and the clash between their planes and our planes, our planes being flown by the Israelis, their being flown by the Syrians over Lebanon, it was a disaster for them. Our planes were obviously far, far better.

And so it seems to me that it is very hard to come to any conclusion that any comparisons are going to give us a match or a reasonable comparison between the military effectiveness of either side. Is that right?

Mr. **GATES**. Mr. Chairman, I think that both our own military analysts and American military officers who have had the opportunity to observe the Soviets would make the observation that while the Soviets do have problems and that their effectiveness is perhaps sometimes not as great as portrayed by some, they nevertheless represent a very effective fighting force. Much of their equipment is on a technological par with our own, and in some respects, particularly in conventional equipment, superior to our own. And when you add to that the impressive quantitative advantage they have in some of the conventional forces, particularly in central Europe, you have a significant military fighting force.

The discipline of Soviet forces generally is regarded, I think, as pretty good. When you get into questions of initiative and the ability to deal with changed circumstances, and so on, you get into areas that are very hard to quantify. By the same token, I, personally, would not equate a Syrian pilot flying a Soviet aircraft with an experienced Soviet pilot flying a Soviet aircraft.

Senator PROXMIRE. The Israeli pilots are better than ours? [Laughter.]

Mr. GATES. I will not make that judgment.

Senator PROXMIRE. They are not as good as the Wisconsin National Guard. I will tell you that. [Laughter.]

Mr. GATES. So I would say that you are correct—the numbers do not translate one for one. The fact that their effort is 45 percent larger, does not mean that they have a 45-percent more effective fighting force or a 45-percent larger one, in any given instance. But at the same time, I do not think anyone who works the Soviet military problem would denigrate either the technological or the personnel capabilities of their armed forces.

EXPLANATION FOR THE SLOWDOWN

Senator PROXMIRE. Now the explanation for the slowdown of the growth rate and the leveling off of procurement provided in your briefing is classified, yet I cannot think of a more important change in the trends, as far as Members of the Congress and the public are concerned. What can you say in unclassified language to help the public and Congress understand the possible causes for the change in the trend, the trend of Soviet procurement, and its significance.

Mr. GATES. Let me ask Mr. Licari to tackle that one.

Mr. LICARI. Senator, I mentioned that there are a number of factors that one can cite that we think are underlying the trend. What we cannot really do, though, I think, is calculate some net effect and determine what the most important factor was. We can list factors, which we think are underlying the new trend, starting with the procurement cycle phenomena, but we think we have to go further than that. That was the traditional way of explaining short-term changes in Soviet defense spending, as it related to procurement.

The additional factors we can also cite, are technological problems in development of various systems, in manufacturing constraints in serial production, in the role of economic bottlenecks.

Senator PROXMIRE. Now let me make sure that I understand. What I asked for is what you can tell us to be unclassified. Unclassified. I realize that is quite a difficult thing for you to do, perhaps, but the reason I am asking that is because I think the slowdown in the growth rate is something that the American people ought to understand, and as long as it is classified, obviously, it cannot be disclosed.

Maybe it would be better to do this. Maybe—because I realize this is delicate and difficult. Perhaps when you sanitize your remarks, you can put in the record your best judgment as to what we can say that would be unclassified to explain this.

Mr. **Licari**. Fine, Senator.

Senator **Proxmire**. Could you do that?

Mr. **Licari**. Yes. Yes.

Senator **Proxmire**. Very good.

[The following information was subsequently supplied for the record:]

We cannot attribute the slowdown in the growth of military procurement to any single factor. Undoubtedly, the natural lulls in production as older weapon programs are phased out before new ones begin have contributed to the change in the trend. The extended nature of the slowdown, however, goes far beyond the normal dips in procurement cycles that we have observed in the past. Instead, the continued slow growth in procurement since the mid-seventies seems related to a complex combination of factors, including technical problems, economic bottlenecks, and perhaps even policy decisions.

New Soviet weaponry embodies more advanced technology than has been typical, given traditional Soviet practices that emphasize evolutionary design. The Soviets have undoubtedly experienced more problems in both R&D and serial production of these high technology systems. For example, the increase in the sophistication of the electronics and in the quality control required probably is substantially greater than that incorporated in earlier weapons changeovers. These problems in turn have probably delayed deployment and caused lower annual production rates for some new systems.

The period of slower procurement growth corresponded with a period of unprecedentedly slow growth for the Soviet economy. Soviet press reporting since the mid-seventies has been replete with descriptions of transportation snarls, energy shortages, and industrial bottlenecks on a scale that seems to suggest increasingly severe problems for what is traditionally a very taut economy. We believe that the Soviets are not able to insulate defense production from such general economic problems and that defense growth may have been slowed by them.

Finally, policy decisions also may have contributed to the slower growth in procurement. Arms control agreements limited the development and deployment of some strategic weapons. Furthermore, the leadership may have chosen to stretch out the procurement of certain systems as part of a strategy to alleviate some of the pressures on the economy.

Senator **Proxmire**. Now one reason for making as much of your analysis as possible available for public discussion is that there are such a wide range of possible explanations. For example, a slowdown in the growth rate might have been caused by problems in the overall economy, or they might be the result of explicit policy decisions. You mentioned the compliance with the SALT agreements, and so forth. So it might be on purpose or it might be the result of actions over which they had no control or a combination of the two.

Do you agree that it probably was a combination of economic forces and policy decisions that led to the slower growth rate of defense costs?

Mr **Gates**. My view is that at this point the principal factors probably were the result of forces over which they had no control. The policy factors that we are discussing, apart from whatever decline in procurement that might have been related to adherence to

SALT I and the unratified SALT II, generally have to do more with policy mistakes, decisions that were made in the mid-1970's on investment that in fact, had a very negative effect on overall economic development in the latter half of the decade.

I will turn the microphone over to Mr. Licari, but my judgment, based on what I have been seeing is that the determining factors at this point, at least, are largely due to forces beyond Soviet control.

Senator PROXMIRE. Well, before you turn it over, let me sharpen my question a little bit by giving an example.

MILITARY EXPORTS

In prior testimony, the DIA spokesman pointed out that Soviet military exports and assistance has been rising, and that since 1980, the U.S.S.R. has been the world's leading arms exporter. Does not the fact that the Soviet military procurement has leveled off since 1976, while Soviet military exports have been increasing, suggest that a policy decision was made to not interrupt the increase in arms exports in order to increase the level of Soviet military procurement for Soviet forces?

Mr. GATES. Well, first of all, again, just to make it clear for the record, what we are talking about is a leveling of the rate of growth. You are still seeing an enormous amount of production of weapons on the Soviet side, probably ample to meet most of their own requirements, as well as to have sufficient numbers available for the export market.

Also, although I would defer to Mr. Licari on this, it is not clear to me that the leveling off has occurred in all systems. You may have some very big ticket items where procurement has leveled off, or where the numbers emerging for the field are not as great, but in other areas, such as perhaps tanks or artillery or something like that, the rate of production might not necessarily have been flat.

But what I am trying to say is, going back to the response to Congressman Wylie's earlier comment, we are still dealing with Soviet production and investment that are enormous. It would probably give them ample output to meet their own requirements, while at the same time having something for the export market.

SALT AGREEMENTS

Senator PROXMIRE. All right. Well, then, let me ask you about the possibility that the Soviet decisions to comply with SALT I and SALT II may have slowed down the pace of procurement in certain areas? You indicated, I think, that that might be part of it.

Can you explain what areas may have been slowed down in response to those two treaties?

Mr. GATES. One example that I have been given would be the number of ICBM launchers. Because of the limits placed on the number of ICBM launchers that can be deployed, they would not necessarily be buying as many ICBM's.

Senator PROXMIRE. But in view of the enormous amount of military procurement the Soviet Union has, would that be a significant element, significant enough to explain the fact that they have fattened their procurement since 1976?

Mr. GATES. I do not think that it would be a major factor, no.

Mr. **Licari**. Senator, if we recognize though——

Senator **Proxmire**. I did not mean to say "fatten." I meant "flatten." [Laughter.]

Mr. **Licari**. Some of these systems you are talking about, related to SALT I and SALT II, of course are the SSBN's, which are very expensive systems. These were, indeed, among the systems that we saw being delayed in deployment in the last few years. They are very expensive, very long lead-time systems, and I would say that they could contribute, certainly to this sense of flattening. They are not by themselves the sole factor, but certainly the slower rate of deployment of those systems is a contributing factor. It would show up definitely in trends.

Representative **Wylie**. Mr. Chairman, I am going to have to leave for another meeting. I wonder if I might have permission to submit about four followup questions for the record.

Senator **Proxmire**. By all means. Yes, indeed, Congressman Wylie.

Representative **Wylie**. It is a very distinguished panel, and I would like to compliment you for your work here this morning.

Senator **Proxmire**. Thank you so much, Congressman Wylie.

[The following information was subsequently supplied for the record:]

RESPONSE OF ROBERT GATES TO ADDITIONAL WRITTEN QUESTIONS POSED BY REPRESENTATIVE WYLIE

Question 1: How does the low level of Soviet military pay relative to the United States distort the comparison of the percentage of Russian military spending relative to its GNP? In other words, is the actual Russian military effort, relative to its GNP, even greater than that shown by the ratios because it pays its military personnel at a much lower rate than does the United States?

Answer: Our measure of the burden of Soviet defense spending--the ratio of defense expenditures to GNP--is 13-14 percent for 1982, the most recent year for which we have an estimate. Costs of Soviet military personnel account for only slightly more than one percentage point of that figure. Soviet prices of civilian and defense activities involve subsidies and taxes that could distort an estimate of this kind. Consequently, our procedures include an attempt to adjust our estimates of actual Soviet costs to give estimates more closely akin to real resource costs.

This is particularly true in the case of military personnel costs. The bulk of Soviet military personnel are conscripts who receive a very low wage. Our calculations of military personnel costs, however, take into account the housing, medical care, food, and other services provided these conscripts in addition to their wage and other monetary allowances. The net result is to cost conscripts at something close to the total wage received by unskilled labor in the Soviet Union, which is consistent with their low educational levels. Of course, these adjustments are themselves estimates and our limited information is more likely to lead to an underestimate, rather than an overestimate of military personnel costs. Our defense burden estimate may still involve some understatement because of our treatment of manpower costs, but it is likely to be small because of the adjustments we already make.

Question 2: There is some controversy over how technologically dependent the Soviet Union is. To what extent is the Soviet Union technologically dependent on the West? To what extent is the Soviet Union technologically dependent on the United States?

Answer: Western technology plays an important, if not critical, role in the Soviet economy. Imported technology has allowed the Soviets to reduce research time, engineering risks, and production costs in some key industrial sectors. Certainly the development of Soviet products such as high-quality fertilizers, drill bits, and third-generation computers was markedly accelerated with the aid of Western technology. In the aggregate, however, Soviet dependence on the West for imported technology is relatively small. Around 10 percent of new Soviet machinery and equipment is imported and last year, for example, one-third of imported machinery and equipment (in value terms) came from Western countries. Soviet technological dependence on the United States is small. Less than one percent of all imported machinery and equipment came directly from the United States in 1982. The amount of American equipment actually reaching the Soviet Union, however, is undoubtedly higher because transshipments and illegal transfers are not identified in trade statistics.

Even though the overall share of machinery and equipment imported from the West is small, the Soviets rely on the West for the bulk of their imports in certain important areas. In 1982, Western machinery and equipment represented more than one-half of Soviet imports in the following categories:

- automotive production equipment;
- equipment for the timber, pulp and paper, and wood processing industries;
- road and roadbuilding machinery;
- drilling and prospecting machines and equipment;
- electric motors;
- equipment for the chemical industry; and
- mining equipment.

Other items high on the Soviet list of imported Western technology (30-50 percent of machinery and equipment imports) include equipment for the printing industry, metal rolling machinery, cable and wire, metal processing/finishing equipment, crushing/grinding/concentrating equipment, equipment for the construction materials industry, and instruments and laboratory equipment. Only in loading equipment, equipment for the construction materials industry, and roadbuilding machinery does the US share exceed five percent of total machinery and equipment imports, but in all three categories it is less than 10 percent. The Soviets also import other Western technology such as metal-cutting machinery, computers, and agricultural equipment that has certainly played an important role in key civilian and military industries even though their share in total Soviet imports is small.

Although the Soviet Union produces all of these categories of machinery and equipment domestically, imports are vital for a number of reasons. Soviet equipment does not normally measure up to Western equipment in terms of reliability, sophistication, durability, or usefulness for some special purposes. Since the Soviets do not report domestic production of these items on a base comparable either with their trade statistics or with Western data, the overall level of "dependence" on Western technology is impossible to measure.

We do know, however, that Western imports help advance Soviet technological progress and generally improve economic performance. Nevertheless, the Soviet economy is clearly capable of remaining viable in the absence of imports of Western technology.

Question 3: To what extent is the Soviet Union dependent on legal technology transfers from the United States as opposed to clandestine industrial espionage? (Assuming the Soviet Union is substantially dependent on the United States for technology, what percentage of that do they get in open, legal, free trade, and what percent is stolen?)

Answer: Soviet acquisition mechanisms include: legal means through open literature, through legal trade channels, and through student scientific and technological exchanges and conferences; illegal means through trade channels that evade US and Western (i.e., COCOM) export controls, including acquisitions by their intelligence services through recruited agents, industrial espionage, and overt collection techniques. While a large volume of technology is acquired by nonintelligence personnel, the overwhelming majority of what the United States considers to be militarily significant technology acquired by and for the Soviets was obtained by the Soviet intelligence services and their surrogates among the East European intelligence services. However, acquisitions by other Soviet organizations are important since it is often the combination of legally and illegally acquired technologies that gives the Soviets the complete military or industrial capability they need. Legal acquisitions generally have their greatest impact on the Soviets' broad industrial base, and thus affect military technology on a relatively long-term basis.

Over the past five years, Soviet legal and illegal trade efforts have concentrated on computers, microelectronics, air-breathing propulsion technology, guidance and navigation systems, underwater acoustical sensors, optical (including laser-related) technologies, and advanced manufacturing processes and equipment. Detected diversions and evasions over the past several years were particularly heavy in the field of semiconductor manufacturing equipment, reflecting the Soviets' intent to improve their entire electronic components industry.

Question 4: The machine tool industry is a very important component of the defense industrial base of the USSR and US. What is the rate of growth of the Soviet machine tool industry? Can anything be inferred from the type of machine tools being produced?

Answer: The machine tool industry is a key in Moscow's efforts to raise industrial productivity and to modernize its civilian and defense industries. To accomplish these twin objectives, the USSR has changed its production strategy in the machine tool sector. Until the mid-1970s, much of the current output consisted of general purpose machine tools that were relatively inexpensive to produce, and the Soviets increased machine tool production by about three percent annually. Given the new needs for special purpose or complex production in a technologically changing society, however, the USSR began in 1977 to cut back the huge annual output of general purpose machine tools, and to expand production already initiated of specialized and automated machine tool equipment. This specialized equipment included numerically controlled (NC) or computer operated (CNC) machine tools, automatic lines, robots and manipulators, machining centers, and aggregate machining systems. These changes led to a 13 percent decline in the total number of machine tools produced during 1978-82 but, at the same time, the introduction of more expensive and complex equipment.

It is taking Moscow longer than the West to modernize its machine tool industry, however. The Soviets are impeded by the relative backwardness of the Soviet electronics and computer industries, the lack of trained computer programmers, engineers, and machine tool operators, the difficulties in integrating new equipment with old, and a state-operated traditional manufacturing system that often discourages innovation. The need to continue to service the existing machinery and to replace the aging portions of the huge Soviet machine tool industry also creates great pressure for continued large-scale production of conventional models. Hence, the USSR continues to produce three times as many conventional metalcutting tools as the US. Although the Soviet annual NC machine tool output of about 10,000 units equals that of the United States, advanced computer-operated multiaxis machines--now common in the West--make up only four percent of total Soviet production compared with 56 percent of the US total.

To help compensate for the slow progress in advanced machine tool production, the USSR is resorting to large-scale imports. In the first half of the 1970s, 80 percent of Soviet machine tool imports consisted of conventional or specialized equipment, but during the past decade advanced machine tools have figured heavily. For some models--machining centers, for example--imports even exceed domestic production. This equipment has helped the Soviets to start up or improve domestic civilian and defense production.

Senator PROXMIRE. If the slowdown was caused to any significant extent by SALT I and SALT II, that would tend to contradict what has become conventional wisdom about how detente failed to modify Soviet behavior and would be a powerful argument for arms control negotiations. Why should the possible effects of the SALT agreements on Soviet military procurement be classified, not available to the public any more than the potential effects of economic problems on military procurement is classified?

Mr. GATES. Mr. Chairman, first of all, our position would be that while the slowdown in the rate of growth of spending on some of the systems covered by SALT may have been a factor in the overall leveling of the rate of procurement, we have not seen a change in Soviet behavior. Moreover, what we have observed on several occasions is a substitution. We have not seen Soviet design bureaus or Soviet weapons production facilities closing down; what we have seen them do is produce different kinds of weapons systems, so that those that have been producing one kind of submarine are producing another kind of submarine.

Senator PROXMIRE. Wait a minute. It seems to me that there is a change here. They had been accelerating, they had been speeding up. And it is true that they are at a very, very high level of procurement and a high level of military spending, but they do not seem to have increased overall, if you are right that their increase may be in some areas but not in others. But this is a change overall; to have something that is moving ahead at a rapidly increasing rate and it levels off, it seems to me that is a change that we should be sensitive to and aware of.

Mr. GATES. Yes, sir. And that gets at the point that Mr. Licari was making about the stretchout of some programs, the fact that some of their ballistic missile submarines have not been coming off the ways as quickly as they might otherwise have.

But I just wanted to underscore the point that we have not seen a transition from weapons production capabilities from SALT to civilian purposes or to nondefense purposes, but rather a swing toward other defense areas.

Senator PROXMIRE. I am talking about changing overall, not conversion. And I realize that in asking this next question it is hard to put it in perspective because all of us are right now so sensitive and aware of the vicious shooting down of the unarmed Korean jet, and that is right in the forefront of our mind, and we realize the Soviet Union is paranoid and has an enormous military power and has a gross disregard for human life. I realize that Soviet defense costs are growing. Even if they were level there would be huge additions to the Soviet weapons inventory each year, and Soviet military power would continue to be great. Nevertheless, the current trend can be viewed as a slowing down of the Soviet military buildup and a trend which is quite at variance from the conventional wisdom about Soviet defense spending during the decade of the 1970's. Is it possible that the Soviet behavior is in part—this is the part that at this point seems a little incongruous—a response to the improved U.S.-Soviet relations that took place in the early 1970's and the efforts that were made to continue improving relations during the rest of the decade?

Mr. GATES. Mr. Chairman, I spent half a dozen years on the National Security Council staff under three Presidents, and it is my view that, with the exception of occasional bumps upward, the Soviet Union has regarded its relationship with the United States to have been generally deteriorating since at least 1975 and probably 1974, after the failure to pass the Trade Act of 1974 and the associated legislation granting the U.S.S.R. most-favored-nation status and making it eligible for Export-Import Bank credits.

There have been some bright moments in that period in terms of Soviet perceptions of the potential for improved relations, for example, the Vienna summit in 1979. But from their standpoint the overall trend in the relationship has been a negative one for a number of years. Therefore, it is my judgment—and it ties in with our earlier statement—that the decline in the rate of growth of procurement is tied principally to forces beyond their control at this point.

As I say also, we believe that they are poised, both from the standpoint of weapons systems in research and development, as well as production capabilities, to resume a higher rate of growth in their defense spending.

COMMITTEE STAFF STUDY ON SOVIET DEFENSE TRENDS

Senator PROXMIRE. Now you have had an opportunity to review the committee staff study on Soviet defense trends which tried to explain the latest conclusion of the intelligence community about the trends in Soviet defense costs and put them in perspective.[1] According to this study the DIA agrees with your constant dollar estimates but comes to a different conclusion when it uses its own methodology to estimate current ruble expenditures for defense. DIA concludes that there was no slowdown in total defense spending in current ruble prices, which increased by 6 to 7 percent per year during the 1970's. Is that a correct description of the differences between the CIA and DIA estimates? And if so, can you explain why Congress ought to give greater weight to the constant price estimates than to the DIA's current price estimates?

Mr. LICARI. Senator, you are right in citing the differences in estimates and methodology between the DIA and CIA. We choose to develop constant price estimates of Soviet defense costs because they exclude inflation and give us in a sense a real trend of effort devoted to military activities overtime.

DIA, on the other hand, is attempting to develop a series for defense spending that it thinks is closer to what the Soviet leadership would be looking at. That is not our intention. We have different objectives and approach them in different ways.

Our estimate of defense spending in constant prices, we think, gives us a reasonably accurate indication of trends in the effort the Soviets are devoting to military activities. But we do not pretend that that in any way gives data that the Soviet leadership would be looking at. Our estimate is in constant prices; it uses Western concepts.

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[1] The full text of the committee staff study entitled "Soviet Defense Trends", may be found on p. 371.

INFLATION ADJUSTMENTS

Senator **Proxmire**. What is the difference in that inflation adjustment that you make?

Mr. **Licari**. We actually do the calculations in constant prices. So we do not really make an inflation adjustment. We calculate the costs——

Senator **Proxmire**. How do you determine constant prices in the Communist economies?

Mr. **Licari**. We happen to use as a price base the year 1970. The reason is that the Soviets introduced a set of new prices in 1967 which we think better reflected real resource costs, and we accumulated enough prices for the several years centered around 1970 to use that as a price base year. We also make an adjustment after we compute total defense costs to adjust, as you are suggesting, for the fact that actual Soviet prices do not reflect resource costs as fully as Western prices do. It is called a factor price adjustment.

After we calculate, using a subset of official Soviet prices and other data, an estimate of Soviet defense spending in ruble terms in constant prices, we make a further adjustment to account for the fact that actual Soviet prices are not as reliable as Western prices in measuring resources.

Senator **Proxmire**. Congressman Scheuer.

SOVIET LIVING STANDARDS AND THE MILITARY BURDEN

Representative **Scheuer**. Mr. Chairman, let me apologize for coming late. I chaired another committee meeting and then I had an appointment with Mr. Ruckelshaus, and I am sorry to have missed what was obviously an extraordinarily interesting session.

Let me ask a very naive question, and I apologize in advance for its foolishness and naivete.

Do you feel that there is sufficient pressure on the Soviet leadership to achieve improvements in the civilian standard of living to make up for the vast shortages that pervade Soviet life, the shoddy, crummy standards of workmanship, the quality of goods that are available, for that to become an important factor in inducing them to be more forthcoming at the conference table, in limiting armaments so that they can divert resources from military enterprises of all kinds into their civilian sector?

In the absence of a voting public, in the absence of a consumer movement as we know it, in the absence of civic and community organizations and spokesmen of any kind, in the absence of any disparate voices other than the voice of government, other than the will of the Andropov administration to improve the quality of life, is there any measurable pressure on them to divert resources from the military to civilian purposes that would have any kind of meaningful impact on their willingness to be somewhat more forthcoming in negotiating arms limitations than they have been up until now?

Mr. **Gates**. It is, I think, a mistake to say, as it is sometimes put by people, that the Soviet leadership is totally immune or oblivious to the problems of the quality of life of the Soviet people. They need look no further than to the country on their western border, Poland, to see that the consequences of ignoring the state of being of their general population has political risks.

It is particularly true in a country like Russia where periodically, over the past several hundred years, there have been extremely violent uprisings of popular discontent. They are rare and they have been put down with extraordinary harshness, but nevertheless they have occurred.

So the leadership cannot be oblivious to these concerns.

By the same token, I think our perception is—and I would defer to my colleagues for further comment—I think our general perception is that they are not prepared to do more than they absolutely must to keep the populous minimally satisfied. They are not prepared to make the kind of resource allocation to consumer goods and to make the changes in the economic structure to provide for the growth of service industries and that sort of thing that would do more than feed the people on a fairly unexceptional diet and provide some consumer goods, often of very poor quality.

If the Soviets choose over the next several years to change their allocation of resources, that change in resources is more likely to go to greater investment in heavy industry, to investments in agriculture and in energy than into the consumer sector. They will make some gestures in that direction; they will make some very highly publicized moves to try and persuade people that they are doing more for them. But fundamentally the consumer is not a particularly high-priority item to the Soviet leadership.

They are particularly not a high-priority item when the Soviets believe that their national interests dictate a further growth in defense spending. This has been traditional Soviet practice. Those who are Andropov's principal supporters in the leadership represent those elements of the economy that have favored the development of heavy industry in part because of its relationship to the military.

So it seems to me that the Soviets are aware of the need to pay some attention to the consumer, but they do not regard it as an item of significant pressure.

Mr. **Noren**. I would amplify that a bit. Andropov, as we made clear in the submission, has signed on to the food program that Brezhnev introduced in May 1982. That program results in an allocation to agriculture of almost one-third of all funds for new fixed investments. That is about the ratio that had been sustained through Brezhnev's last years, and it is a very heavy resource cost.

I think in terms of the investment, the allocations to agriculture and to the food industry and the associated support industries, that that is a commitment to the consumers.

I would say that in the 1970's, after 1975 as Mr. Gates has suggested, the regime reacted to circumstances that were beyond its control, which originated in part from mistaken investment decisions, misallocation of investments, and most of all, a misjudgment of the productivity gains that would be forthcoming to sustain economic growth. Those planned gains were not realized.

As a result, you did not have enough production on the supply side in terms of metals and other industrial materials, and following that, machinery, to support the kinds of investment programs they wanted.

I think you were talking earlier about policy decisions. The policy decision was an adaptation to circumstances. In those circumstances, I think the military took its lumps along with the civilian programs.

Representative SCHEUER. I did not get that last sentence.

Mr. NOREN. I think the military took its lumps along with the civilian programs.

ENERGY

Representative SCHEUER. Let me ask some questions about energy.

I understand from your testimony, which I unfortunately missed, that you have more or less revised your estimates that oil production would decline in the early 1980's, and now your best estimate is it will decline in the late 1980's. Is my understanding correct? If it is, can you tell us why it will decline at all in the late 1980's, how sharp or how little that decline will be, and what its impact will be on reduced exports of oil to Soviet client states in Western Europe and elsewhere?

Mr. HAUS. Well, a decline is not foreordained. As I indicated before you arrived at the subcommittee hearing, Soviet reserves are, in theory at least, more than ample to support some increase in production throughout the rest of this decade. The key variable will be the level of effort the Soviets are able to make, because the basic problems they are facing are that the reserves tend to be increasingly farther and farther away from centers of development, and they tend to be deeper. In other words, they tend to be less accessible in general, and that raises the cost.

To give you an indication of how investment requirements have been increasing, from 1970 to 1980 the cost of producing a barrel of oil essentially tripled in the Soviet Union. From 1980 to 1985 the Soviets plan to nearly double the amount of resources—in real terms—that they are committing to the oil effort. If they want to continue to see growth through the end of this decade, they would effectively have to triple, based on our calculations, those resources, and they have talked about this themselves.

Our judgment is that in the most likely case, given, on the negative side, the increasing difficulty of developing the reserves they have, and, on the positive side, the fact that they have been having some small successes on the conservation front at home, coupled with the advent of gas sales to Western Europe on a much greater scale, we think probably what will happen, if current trends play out, is that some time in the second half of this decade Soviet oil production will probably level off, and the Soviets will allow it to decline. This, however, does not have to be the case.

There are, however, a number of risks on the down side to the Soviets, not the least of which is the fact that most of their largest major producing fields, which had really carried them through the 1970's, will have dropped by 2 to 3 million barrels a day output between the current time and 1990.

So they are in a situation in which they are constantly having to work harder. We think that they will probably take advantage of the gas sales, take advantage of certain conservation measures they are trying to introduce, and allow production to fall a bit. It will not be a sharp drop. At the outside by 1990 they should be producing at least 11 to 12 million barrels of oil a day.

Representative SCHEUER. From what you are saying, their experience roughly parallels ours.

Mr. HAUS. That is correct.

Representative SCHEUER. At a time of increasing energy costs the response has been more conservation and probing higher priced resources, and somewhat less of a production. So it is almost the same reaction that the market forces would have produced. Their central planning has produced sort of a mirror image of what our market forces have provided in this country.

Thank you, Mr. Chairman.

Senator PROXMIRE. Senator Sarbanes.

Senator SARBANES. Thank you, Mr. Chairman.

REASONS FOR REVISED ENERGY ESTIMATES

First, Mr. Chairman, I want to commend you for again holding these hearings as part of a series that you have now done, I think, over a decade. I think they make an enormous contribution to the record and to the material available to the Congress, and to the extent that it can be released, available to the public. I simply wanted to register that at the outset.

I think this is an example of the kinds of hearings we ought to do more of, and not immediately focus on some current problem, but trying to develop a deeper base of understanding out of which we can make lots of decisions.

Let me first pursue the energy question which Congressman Scheuer was on.

You say on page 3, "All things considered, the energy picture implies much less of a constraint on growth of the domestic economy than we thought last summer."

As I read this rather quickly, and I apologize for not being here earlier, there is a substantial revision of your views on the energy question. Is that fair?

Mr. GATES. Yes, sir.

Senator SARBANES. Why? What was it that we have discerned over a few months or a year at most that led to a substantial revision in this estimate?

Mr. GATES. We asked for a major reevaluation of our estimates on Soviet energy about a year-and-a-half ago, and what you see in front of you are the results of both a considerable amount of new data and a great deal of new analysis, and I would like to take just a moment to ask Mr. Haus to discuss both of those with you.

Mr. HAUS. When we did our original work in the late 1970's—specifically in 1977—most of the analyses and most of the data that were available to us on Soviet oil and the rest of the Soviet energy sector come from unclassified sources, and at that time most of those sources pointed to serious problems. Many of those problems in fact still exist.

Since 1977, and this has been a gradual process rather than one that occurred overnight, we have been introducing a variety of techniques that permit us to take a look at the Soviet energy picture—particularly their petroleum situation. [Security deletion.]

We have therefore been able to get a much better, more rounded view, and that has been principally responsible for the change in our judgments on Soviet oil reserves. Our views on Soviet gas reserves have always been that they were very substantial. For oil, however, there has been a major change.

Something else has happened. We have found that we underestimated the ability and the willingness of the Soviet leadership to make the kind of effort they would need to, in terms of drilling and in terms of exploration and development work, to keep oil production growing.

In the late 1970's, not long after our estimate appeared—that is, the Agency estimate—and the subsequent discussion that took place in the press and in this committee, the Soviets made a major effort to turn the situation in West Siberia around. In fact, Brezhnev himself, along with Kosygin, went out and took measures to increase production in West Siberia. And it worked. We have seen a doubling and tripling over a 5-year period of the inputs there, and that has made a difference. They have had the reserves there to permit them to do that, although it is getting harder.

5-YEAR PLAN PROCESS

Senator **Sarbanes**. On page 11 you say that "Andropov must soon decide how to approach the defense spending and resource allocation issue because the planning cycles for the 1986-90 plan is already underway."

Once the Soviets are into a plan, to what extent do they become locked into it and to what extent can they adjust a plan?

Mr. **Gates**. They can make adjustments. There is no question about it. In fact, perhaps one of the best examples of their willingness to interrupt the plan is the case that Mr. Haus just indicated. In the 1976 to 1980 plan the Soviets interrupted it midway to throw enormous new resources into energy exploration, and it is one factor that helped unbalance in some respects the rest of the economy as well.

But in terms of their more regular procedure and their flexibility, let me ask Mr. Noren to address that.

Mr. **Noren**. Well, on the particular point of the planning for military programs, I think we have decided that they do pay a great deal of attention to the 5-year plan. New programs typically are coordinated with civilian programs within the context of 5-year plans. That does not mean that they do not adapt to circumstances and then stretch out programs as required. We think they did so in the 1976-80 plan.

Senator **Sarbanes**. Does that mean if you were trying to influence the directions in which the Soviets would be committing their resources, to the extent that relates to their perception externally as well as internally, that the better time to do that is as they are leading up to decisions for a 5-year plan and somewhat more difficult in the course of the 5-year plan to get them to shift direction or priorities?

Mr. NOREN. I think it would be true to say that the more influential decisions, both in military and civilian programs, are made in the 2 years preceding the beginning of the 5-year plans.

Mr. GATES. I might add, Senator, that as part of a military 5-year plan the military prepares an assessment of the external threat, and both of these activities, their assessment of the world environment and then their actual plans, are as Mr. Noren indicated, prepared in the 1½ or 2 years prior to the beginning of the new plan.

ECONOMIC STRENGTHS AND WEAKNESSES

Senator SARBANES. In the operation of their economy, in what areas do you see them as being the strongest in terms of their economic efficiency and in what area the weakest? To put the question even more direct, if the West is trading with them, what trade is it that helps them the most because it picks up an area where they are inefficient and therefore have to devote heavier resources in order to handle the problem, as compared to areas that are more efficient and, therefore, they have to devote less resources to?

Mr. NOREN. I think one important area clearly is agriculture. Along with grain we also must remember that they buy a considerable volume of other agricultural products and foodstuffs. It would be very expensive for them to expand production of these commodities in the Soviet Union. So what they can do is save considerable resources for example, by importing agriculture products, and, if they can, by selling gas, because gas production can be expanded much more cheaply than the production of agricultural products.

Senator SARBANES. I cannot find it now, but somewhere in here you talk about their foreign currency balance. Do you recall where that is?

Mr. NOREN. Foreign trade is discussed beginning on page 10 of the briefing paper we submitted.[1]

HARD CURRENCY PAYMENTS POSITION

Senator SARBANES. I take it they are paying for the grain imports essentially with the energy exports, is that right?

Mr. NOREN. That is right.

Senator SARBANES. What prompted them to make what I perceive, at least as I read the text here, to be this major effort to improve their hard currency payments position in 1982? They slashed the deficit actually to one-third of what it had been the previous year and had record high assets in Western banks, half of their total hard currency debt. What led them to do that?

Mr. NOREN. Senator, in the late 1970's their payment position had been relatively good because of a high volume of energy exports and a rise in the price of energy exports.

In 1979-81 the volume of their energy exports leveled off and then declined. They found themselves in a position in which their gross debt, their hard currency debt to the West, went up from $17.9 billion in 1980 to $20.9 billion in 1981, a rise of $3 billion in 1 year.

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[1] See briefing paper beginning on p. 293.

This was at a time when they were watching Eastern Europe and seeing what had happened to Polish debt, Romanian debt, and in most of the East European countries the debt to the West had been rising. In addition, the prices the Soviet Union received for energy exports fell in 1982.

They obviously determined that they were going to do something about that. They attacked the problem in several ways. First, they cut back on their orders for Western machinery; second, they instituted in 1982 a 10-percent reduction in petroleum exports to most of Eastern Europe; third, partly because of slower economic growth at home, the growth in home consumption of energy diminished considerably.

ECONOMIC PRESSURES

Senator **SARBANES**. Where do you see the economic pressures working on Andropov and the leadership there as they approach this decisionmaking for the next 5-year plan, 1986 to 1990, which I take it is in the process now of being formulated?

Mr. **NOREN**. I think the single most important problem that the leadership faces is how to make the system more productive. They are clearly going through a period when they cannot use the same old formulas to maintain or revive growth. In some of the materials we submitted to the committee we illustrated the slowdown in the rate of growth of the labor force; because of reduced rates of investment growth the growth in capital stock is going to be less. They have to make up the difference in productivity.

We understand that the machinery sector in particular needs a substantial dose of investment for modernization. Part of that has to do with finding the investment resources to provide that modernization. They also know that they have to do a better job of introducing new technology, whether it is domestic or from the West. They have access to substantial amounts of new technology, but they have a very great difficulty in assimilating it. Improvement in this area requires some changes in the system that would in fact induce faster assimilation of technology. As our submission suggests, we are fairly pessimistic that that will come about, that large improvements will come about in that area.

Senator **SARBANES**. My time is up. I have a couple more questions that I will defer.

Senator **PROXMIRE**. Why do you not go ahead.

TWO-TRACK ECONOMY

Senator **SARBANES**. I guess there is a view on our part that the Soviets effectively run a two-track economy. They have a military which is efficient, productive, and highr quality and all the rest of it; then they have the rest of the economy that everyone characterizes as inefficient, unproductive, shoddy quality and all the rest of it. Is it your view that that is the case? And if so, how do they accomplish this complete bifurcation of being able to be efficient in one place and grossly inefficient in another?

Mr. **GATES**. Let me address that and then I will ask Mr. Noren and Mr. Licari to fill in some of the details.

To a certain extent that is not an inaccurate description, in that the military has first call on high quality goods and first call on technology, first call on investment resources, first call on labor force, and so on. Perhaps it is not as much a two-track economy as it is a system under which the military gets to pick off the best, whether it is an assembly line or people or anything else.

What we are seeing and what we are documenting this year really for the first time is that those two tracks are not completely separate. When the remainder of the economy—transportation, the railroads, the steel industry, the cement industry, and so on—reaches a certain level of poor performance it does begin to impact on the military because there is not enough there for the military to be able to achieve all of its objectives.

This gets at the issue that I was describing earlier for the chairman, and that is the possibility—we do not have any direct evidence of it—that there may even be a split within the military about whether to maximize allocations to defense programs out of current resources or whether they see their longer-term interests as better served by perhaps taking a little less now and seeing more invested in trying to overcome some of the problems in the other sectors of the economy that now, we believe, are beginning to be something of a drag on their procurement capability.

Let me ask my colleagues to add to that.

Mr. Licari. Senator, I would add simply one thing. As the Soviet economy shifts to more emphasis on high technology goods, and especially in the defense sector, I think the problem with quality will be very important there as well. The insulation, as Mr. Gates said, that we had conventionally viewed as existing between the civilian sector and the military sector, can break down. As high technology goods become more important on the military side, quality becomes more important. Then, even the military side begins to suffer from the same kinds of problems that occur in the civilian economy.

Senator Sarbanes. Thank you, Mr. Chairman.

IMPROVEMENT IN CHINA'S ECONOMY

Senator Proxmire. Mr. Gates, you and your colleagues have been very good in responding to questions. They have been detailed and helpful. I am going to ask a series of questions on China, of Mr. Phillips, I presume, primarily, and I am going to ask Mr. Phillips to be as concise as he can, and see if he can answer each one in less than a minute. If so, then I can yield to my colleagues and we can finish up.

I know it is hard to do in this area. And if you would like to expand on the remarks in the record, by all means do that.

Senator Sarbanes. You ought to make part of the deal that the question not run for more than a minute. [Laughter.]

Senator Proxmire. The question will run for a lot less, I can tell you.

The first question is you report that China's economy is in much better shape than it was a few years ago, but I am not sure that you give the reasons. Will you in this brief time discuss the factors that explain the improved performance and some of the measures that illustrate the improvement?

Mr. **Phillips**. Very briefly, and I will expand on this later. When we say a few years ago we are talking about the pre-1976 period, or the pre-1978 period, if you will. What we are saying is that there has been more attention now focused on efficiency problems. Some of the reforms have had positive effects on economic performance, particularly in agriculture. And so when we are talking about a few years ago we are talking about 5, 6, or 7 years ago.

INVESTMENT

Senator **Proxmire**. Why do the Chinese central planners have such a difficult time controlling investment in heavy industry and shifting emphasis to light industry, which is what they said they wanted to do several years ago? Why is that so hard?

Mr. **Phillips**. In the first place, there are the traditional attitudes toward light and heavy industry. Heavy industry has always been considered the engine of growth in the economy, and shifting emphasis toward light industry has been a problem for planners. But even more correctly, I think, it is not a question of investment in heavy industry or light industry; the problem at the moment is one of too much investment across the economy. Very simply, if $100 can buy you 3 projects done in a normal span of time, if instead of working on 3 projects you are working on 20 projects in that time with the amount of resources available in the economy, you cannot complete any of them on time. What is being squeezed are the large projects in energy and transport, which of course, if you think of it, are heavy industry.

So it oversimplifies the case a little bit to say that they are trying to invest in light industries rather than in heavy industry, and the Chinese have pointed to this themselves as a problem. They have to invest in appropriate parts of heavy industry as well as in light.

UNEMPLOYMENT AND INFLATION

Senator **Proxmire**. You gave me unemployment figures in China which shocked me and surprised me—10 percent in the cities, you said.

Mr. **Phillips**. I think we said "up to."

Senator **Proxmire**. And inflation rates from Chinese official statistics. Are these from Chinese statistics, and if so, how reliable are they?

Mr. **Phillips**. The 5 to 10 percent?

Senator **Proxmire**. Yes, sir.

Mr. **Phillips**. The highest official inflation rate that the Chinese have published was about 3 years ago, and I think it ran about 6 percent. More recently, in the last couple of years, they have been publishing figures of about 1 percent, 2 percent, maybe 2½ percent.

Senator **Proxmire**. Are they reliable?

Mr. **Phillips**. They are what the Chinese call basic price stability. We do not believe that they are reliable. The way the statistical system is put together, it does not take account, for example, of an individual who is unemployed going into a store, buying a pair of shoes, and turning around and selling it to the ultimate consumer at a higher price. Official figures do not capture that sort of hidden price increase. That is why we put a figure of 5 to 10 percent on it. A 2-percent inflation rate in an economy would not be considered by an American to be serious. So we feel, to give the flavor, saying something like 5 to 10 percent is more accurate.

Senator **Proxmire**. How can you come close to estimating it in that fantastically complex, enormous country? Do you have an independent sample of prices.

Mr. **Phillips**. No, sir, we do not.

Senator **Proxmire**. You do not know if it is 5 or 10 percent or 15 to 20 percent or 2 or 3 percent; do you, really?

Mr. **Phillips**. We do believe that it is higher than the 2 to 3 percent that the Chinese are publishing, and we feel that a range, of 5 to 10 percent, which is why we do give a range, probably captures the actual inflation rate.

MARKET SOCIALISM

Senator **Proxmire**. China's reforms have been described as a step toward a form of market socialism. Do you see it that way? Or how would you characterize their reform movement in terms of state control versus private enterprise and how far do you believe the reforms will go?

Mr. **Phillips**. I feel, and I think most of my colleagues would agree with me, that China is not becoming capitalist, which is one of the charges that has been leveled at them. They are working toward some form of market socialism; they are trying to work on reforms that structure incentives to try to make the economy operate more efficiently. How far they are going to go is really hard to say at the moment, primarily because some of the reforms, as we have noted in our presentation, have led to other problems—particularly the investment problem—and to some loss of control over the economy.

TRADE PROSPECTS

Senator **Proxmire**. In view of China's actions to control its balance of payments, how would you describe the prospects for trade with the United States over the next few years?

Mr. **Phillips**. There have been some special elements that have entered into the trade question in the last year. We feel that prospects are favorable for certain types of products. The Chinese, for example, in their desire to move toward intensive growth rather than extensive growth, toward upgrading their current capital stock, are looking at improving current facilities. That is one area in which the United States can have some impact, and it can be favorable to bilateral trade.

At the moment, given the situation with the Chinese cotton crop, that sort of agricultural trade is not likely to grow in the near future. It is very hard to say, because there are a whole range of products, and if we can find the right sorts of goods, we feel that the Chinese are going to be willing to do business and willing to expand bilateral trade.

[Additional information subsequently supplied for the record follows:]

UNITED STATES-CHINA TRADE PROSPECTS

We believe there is potential for continued growth in US-China trade over the next several years, although at a pace more moderate than the rapid increases of 1978–80 (see table). By 1981, bilateral trade had increased from a level of 374 million dollars in 1977 to a strong 5.5 billion dollars, and the United States is firmly entrenched as China's third largest trading partner (after Japan and Hong Kong).

In 1982, China reduced its worldwide imports by 10 percent and its imports from the United States by 19 percent. At the same time, China's exports to the United States rose 21 percent, partly on the strength of a 34-percent increase in textile sales. In first half 1983, China's imports from the United States were down a sharp 39 percent. This reflects reduced Chinese purchases of cotton and a variety of agricultural commodities that resulted from both China's domestic economic situation and its retaliation against US imposition of import quotas on Chinese textiles. Exports to the United States were up a slight 3 percent.

We expect total bilateral trade to rise next year. China's imports of cotton and synthetic fibers, we believe, will rebound, as will grain purchases from the United States. We also expect US suppliers to take part increasingly in the upgrading of China's industrial facilities planned that is for the next several years. US imports of textiles from China will also continue to grow, boosting that side of the trade equation.

UNITED STATES-CHINA TRADE

[In millions of Dollars]

	1976	1977	1978	1979	1980	1981	1982
U.S. exports	135	171	865	1,724	3,755	3,603	2,912
U.S. imports	202	203	324	594	1,058	1,875	2,275
Balance	−67	−32	541	1,130	2,697	1,728	637
Annual change, total trade (percent)		11	281	95	108	14	−5

[Dollars in billions]

	Jan.–June 1982	Jan.–June 1983	Percent change
U.S. exports	$1,707	$1,034	−39
U.S. imports	1,041	1,071	3
Total trade	2,748	2,105	−23

DEFENSE SPENDING

Senator **PROXMIRE**. Will you summarize China's recent defense policy with respect to total spending and spending priorities?

Mr. **PHILLIPS**. I am afraid that I am not equipped to do that.

Senator **PROXMIRE**. Will you do that for the record?

Mr. **GATES**. Yes.

[The following information was subsequently supplied for the record:]

CHINESE DEFENSE SPENDING

Our estimate of expenditures for defense shows that outlays grew steadily in real terms during the late 1970s and peaked in 1979 to pay for the War against Vietnam. [Security deletion.]

Since 1979, China's well publicized economic retrenchment has forced cutbacks that in 1981 brought expenditures for defense to their lowest level since the early 1970s. The defense budget made a modest recovery in 1982, rising by 6 percent. Projections for the Sixth Five-Year Plan (1981-1985) suggest that spending will hold at the 1982 level through at least 1985.

We believe a share of defense spending is being allocated to weapons development and procurement of new weapons. Progress made in recent years in trimming the size of the armed services and phasing out the production of outdated weapons is freeing funds for weapons research and the production of a new generation of weapons. Defense Minister Zhang Aiping, in a recent party journal, calls development and production of sophisticated military hardware the "first task" in defense modernization.

An additional, often overlooked, source of defense funding is Beijing's profits from international arms sales. [Security deletion.] Moreover, defense plants now use excess production capacity to produce consumer items for both domestic and foreign markets. We believe a portion of the profits from those measures will be used to support weapons research and development and help modernize defense plants.

China almost certainly will need to increase the military budget substantially in the 1986-90 time frame to procure weapons now under development. For the time being, lack of suitable follow-ons to the People's Liberation Army's (PLA) most expensive weapons, such as aircraft and armor, will obviate a call for greater defense spending. Moreover, the PLA leadership's apparent acceptance of current spending levels—in expectation of reaping benefits from overall economic improvement—should help to prevent the military budget from becoming a major area of contention through 1985.

Senator PROXMIRE. We have heard testimony on China's industrial espionage activities to illegally obtain technology from the United States and the West. Will you discuss this and also explain why the fact cannot be made public?

Mr. PHILLIPS. I would prefer to do that for the record, if I might. I am not an expert in this sort of thing, and I do not want to overstep my bounds.

[The information to be supplied for the record is a security deletion.]

CHINESE-SOVIET RELATIONS

Senator PROXMIRE. Finally, I would like you to discuss the possibility of a Sino-Soviet rapprochement in light of recent events. What is the possibility of them getting together again?

Mr. PHILLIPS. Again, I have to plead that I am not an expert in this, but my own feeling, looking at what has gone on over the past few months, is that there has not been substantial movement in this direction. There are longstanding problems between the two countries.

I think I have just run up to 30 seconds. Maybe Mr. Gates would like to add something to that.

Senator PROXMIRE. Well, that is pretty important.

Mr. GATES. We believe that there is some opportunity for the relationship between the two countries to improve, particularly in the economic and trade areas, cultural relationships, perhaps improved diplomatic relationships, and perhaps at some point improved party-to-party relationships. However, it seems clear to us that the fundamental differences that have divided the Soviet Union and China over the past 25 years remain. There may be some accommodations on the border and so on, but they are basically antagonistic powers and they have been for a number of years. Even at the so-called height of their relationship there were serious differences that were simply submerged.

What you have particularly, it seems to us, at this point is two powers, both of whom have a real interest in persuading a third power that they really are going to get along a lot better. I think both of them view the warming trend between them as being of particular value in terms of strengthening their bargaining power or leverage with the United States. So to a certain extent we think that they probably put a little better face on the relationship than it really deserves at this point for their tactical, diplomatic purposes. There is some room for improvement, and I do not think any of us would be surprised to see that happen. But there are very real limits as to how far it will go.

Senator PROXMIRE. I want to thank you very, very much.

Did you have another question, Senator Sarbanes?

Senator SARBANES. Mr. Gates, could you just briefly set out what you regard those fundamental differences as being that provide this basis for perceiving that the relationship is fundamentally antagonistic?

Mr. GATES. One of the differences is territorial. The Chinese regard the Soviet Union as occupying several million square miles of territory that historically was Chinese; they regard the Soviets as a security threat in view of the 45 to 50 divisions that sit on their border; there has been very little talk by the Soviets or the Chinese of any progress in that relationship.

The Chinese themselves have set three conditions for any real improvement in relations: For the Soviets to stop backing the Vietnamese in Kampuchea; for the Soviets to get out of Afghanistan; and the third is to reduce significantly the Soviet military pressure in Mongolia and along the Chinese border with the Soviet Union. The Soviets have indicated no flexibility in any of those three areas.

Finally, there is the ideological aspect, even though Mao is dead. I come at this from the standpoint of someone whose background is in Soviet affairs, so my colleagues down at the end of the table may have different views. We have some differences of view between our Soviet and Chinese analysts that sometimes parallels the Soviet-Chinese split. But from the Soviet standpoint, I think they cannot be optimistic that the Chinese will ever be willing to recognize Soviet primacy in the Communist movement. Indeed, the Chinese have their own pretensions from the Soviet standpoint of being a second center of ideological truth, and that is unacceptable to the Soviet leadership.

So these are some of the fundamental differences.

ECONOMIC REFORMS AND THE HUNGARIAN MODEL

Senator SARBANES. Andropov has talked about economic reforms, and you discussed that to some extent here. I take it that it is your view that there is an entrenched bureaucracy which makes significant reforms difficult, but in any event he is only talking about doing it on a pilot basis and therefore the impact of that would not be very great in any event. The one thing we do know about him—we have all these ideas floating around about him, and no one really seems to know for sure—but we do know he was the Ambassador in Hungary and presumably has followed developments in that country closely. Do you think there is any indication they would try to move to a Hungarian model?

Mr. GATES. My view would be that even if Andropov wanted to do that that he would run into substantial opposition within the Politburo. As we were discussing earlier, I think there is probably a general perceived need on the part of the Soviet leadership to do something about their economic problems. One reason why Andropov was selected as General Secretary was probably because there was a perception that he was a man of action who could do something about these problems. I think our view is that the consensus falls apart when it comes to considering specific measures that one might take.

Additionally, while Andropov may be somewhat sympathetic or willing to tolerate the Hungarian experiments, I think there is a generally perceived view on the Soviet part that for a small country like Hungary to implement those things is one thing; for a huge country with an economy the size of the Soviet Union to try and do so would be not only very risky, but quite unwise. My guess is we are not likely to see the Soviets move in that direction.

Senator SARBANES. The Chinese have done some of that, is that not right?

Mr. PHILLIPS. They have done some of it, and, in fact, they most recently have been talking quite a bit about the Hungarian reform.

Senator SARBANES. I notice in agriculture you say their output jumped 11 percent in 1 year's time.

Mr. PHILLIPS. Yes. Partly due to reforms, as it points out, but also partly due to changes in the procurement prices.

Senator SARBANES. Partly due to what?

Mr. PHILLIPS. The procurement prices, the prices the Government pays to procure agricultural products, which have been raised several times in the last 3 or 4 years. It is hard to separate out the relative importance of those two steps.

Senator SARBANES. Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Mr. Gates and gentlemen. You have certainly done an outstanding job. We are very grateful to you. You have made a fine record.

I hope you can sanitize the hearings as soon as possible and be as generous as you can in making that information available because I think it is critical for public understanding.

Thank you very, very much.

The subcommittee will stand adjourned.

[Whereupon, at 12:30 p.m., the subcommittee adjourned, subject to the call of the Chair.]

APPENDIX

JOINT ECONOMIC COMMITTEE BRIEFING PAPER

USSR: ECONOMIC TRENDS AND POLICY DEVELOPMENTS

OFFICE OF SOVIET ANALYSIS
CENTRAL INTELLIGENCE AGENCY
14 September 1983

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Introduction

When Yuri Andropov became General Secretary of the Communist Party of the USSR, economic growth rates had been falling, the increase in per-capita consumption had come to a halt, and resource allocation decisions between military and civilian needs were becoming more difficult. Externally the Soviet Union was providing support to the stagnating economies of Eastern Europe (particularly Poland) and fighting a costly war in Afghanistan.

With the first anniversary of Andropov's rise to power approaching, we review in this paper his policies and programs and assess their impact on the economy and on military spending. The paper first summarizes the performance of the Soviet economy in 1981-82 and the reasons for the sluggish economic growth during this period. The economic policies being pursued by Andropov, insofar as they have been revealed, are then described, and the effect that these policies have had and are likely to have on economic growth in the near term is assessed. In the final section, we turn to the longer term outlook for Andropov's economic and defense policies and for the economy in general.

Economic Performance in 1981-82

In the first two years of the 11th Five-Year Plan period (1981-85), growth in Soviet gross national product (GNP) averaged about 2 percent per year, somewhat above that attained during 1979-80 but well below both the rate achieved during the 1970s and the rate implied by the 1981-85 Plan (figure 1). The 1981-85 Plan depended on a strong turnaround in the rate of growth of the combined productivity of labor and capital. Instead, factor productivity in the economy declined in 1981-82 by about one percent per year. General Secretary Andropov found almost every sector of the economy lagging behind plan when he took office in November 1982.

Industry

The slowdown in the growth of industrial output was especially worrisome. In 1981-82, average annual growth was less than 2 1/2 percent, about half the rate called for in the 1981-85 Plan (figure 2). Two developments during this period were particularly noteworthy: (1) the slowdown was evident in practically every industrial branch, and (2) the trend in the productivity of labor and capital employed in industry was down dramatically. Despite considerable effort, the Soviets were unable to halt the deterioration in efficiency with which combined inputs of capital and labor are used in the USSR. Factor productivity in industry declined at an average annual rate of roughly 1 ½ percent during 1981-82.

Energy and Raw Materials. The growth of energy production in the USSR has decelerated significantly. After three decades

Figure 1

USSR: Average Annual Percentage Growth of GNP

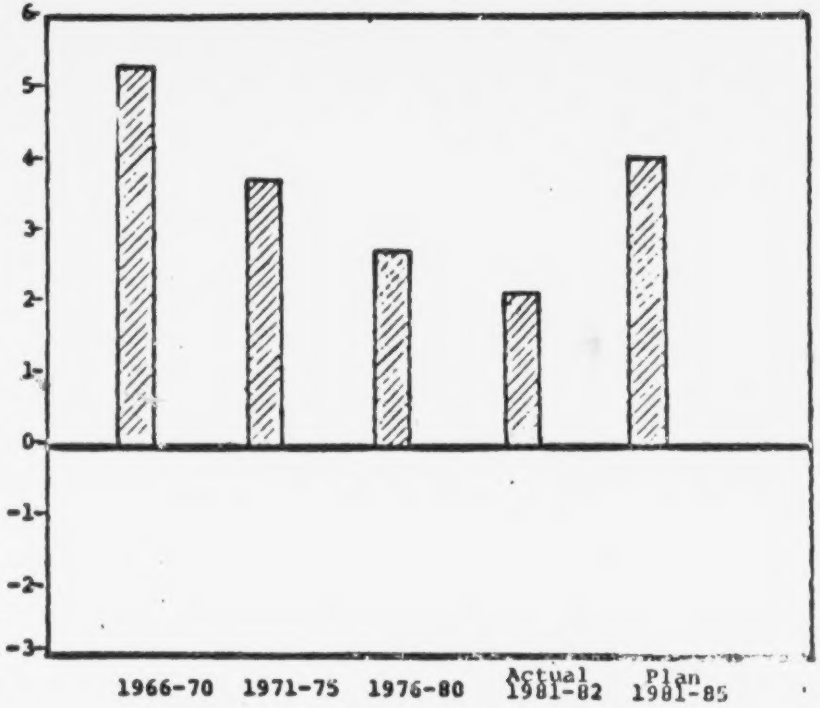
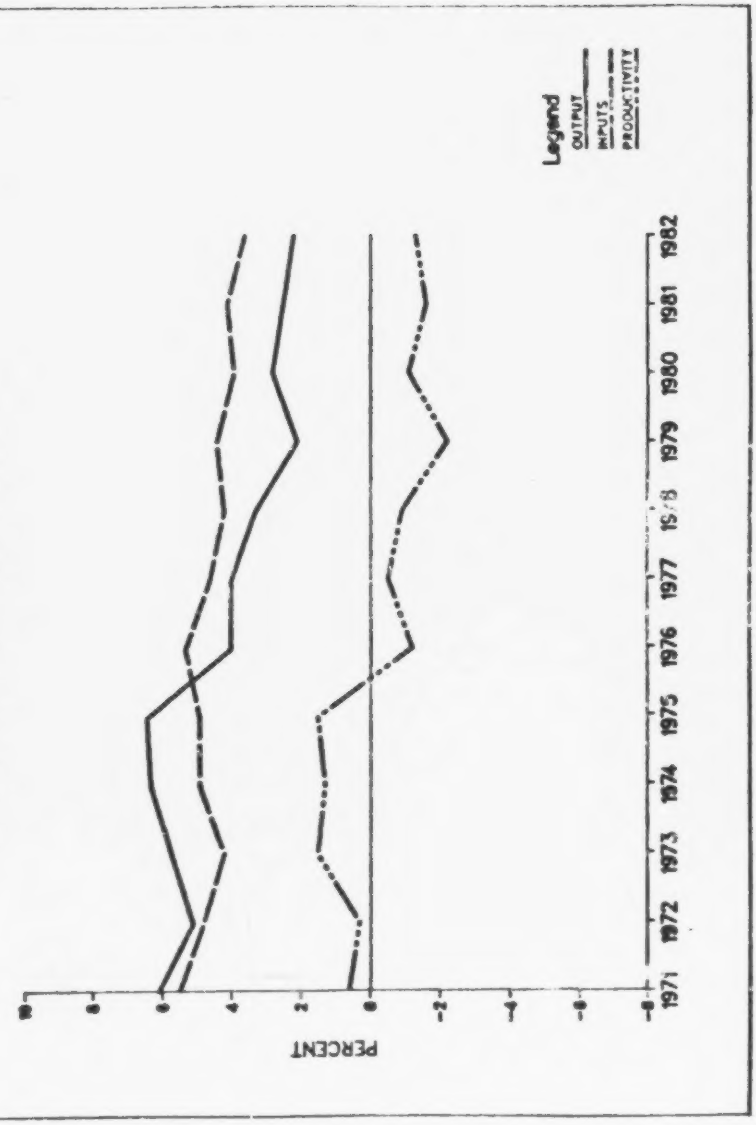


Figure 2

GROWTH IN OUTPUT, INPUTS, AND PRODUCTIVITY IN SOVIET INDUSTRY



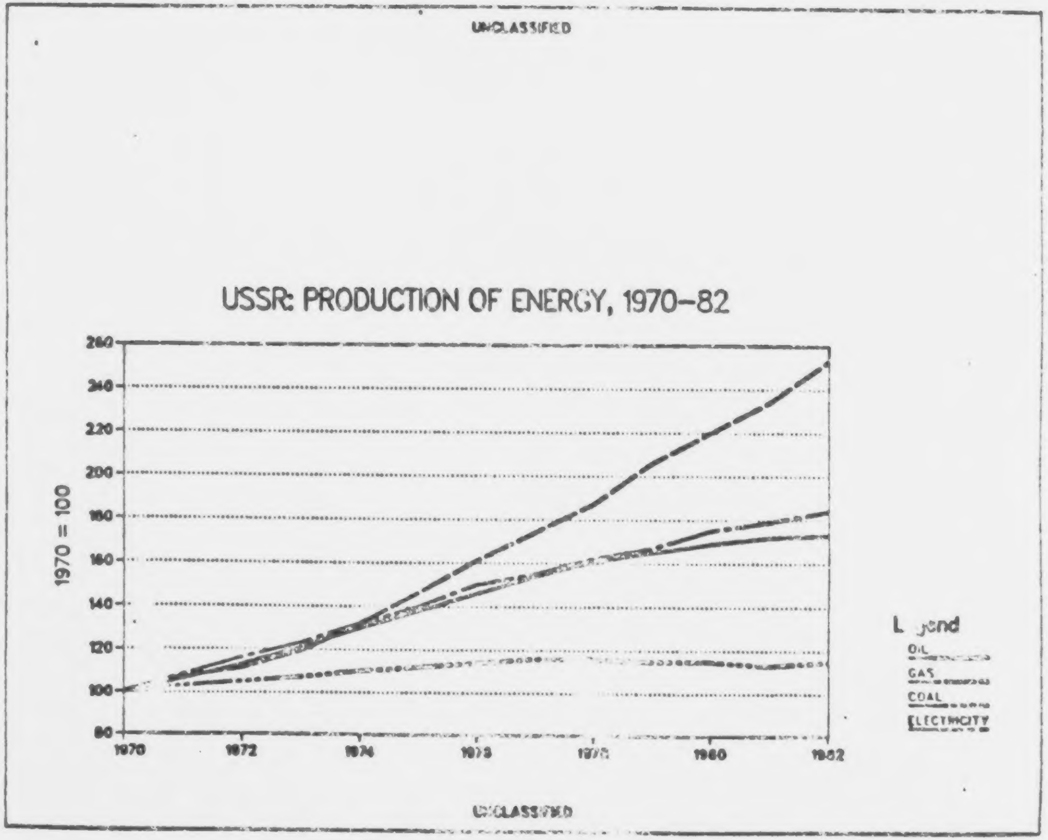
of growth, oil production in the USSR has begun to level off, although--as explained below--the prospects for the future are considerably better than we once thought. Production of oil (including gas condensate) has inched forward during the current five-year planning period and now stands at 12.4 million barrels per day (b/d). While gas output grew rapidly in 1981 and 1982, raw coal output increased in 1982 for the first time since 1978.

Widespread shortages of raw materials were a major reason for the marked slowdown in industrial production in 1981-82 (figure 3). Declining growth in production of coal and its deteriorating quality, for example, hurt electric power and ferrous metallurgy. Shortages of electric power, in turn, impaired the performance of industrial power customers, and an insufficient supply of steel products contributed to the lower growth in machinery production. Shortages of coke and refinery byproducts also hindered production of important chemicals, curtailing production in the interdependent branches of the chemical industry.

Machinery. Stagnation in the output of rolled steel products in 1981-82 held back growth in the machinery branch of industry. Machinebuilding is a pivotal sector, producing military hardware as well as consumer durables and machinery for investment. The low rate of growth of machinery output--only 3.2 percent annually during 1981-82--is about half the rate planned for 1981-85 and by far the lowest since World War II.

Even this slower growth of machinery output depended in part on rising imports of rolled ferrous metals. Imports of steel

Figure 3



USSR: PRODUCTION OF ENERGY, 1970–82

Figure 3 (cont.)

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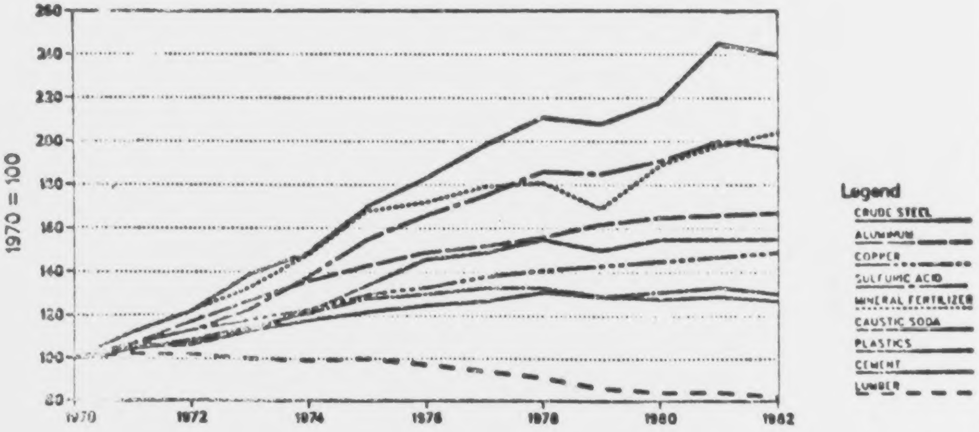
USSR: PRODUCTION OF INDUSTRIAL MATERIALS, 1970–82



UNCLASSIFIED

products, for example, totaled $5.3 billion dollars in 1982. The Soviets also stepped up imports of machinery and equipment from the West and from Eastern Europe.

The hard choices on resource allocation facing Andropov are most evident in the machinery sector. The share of machinery and equipment in total investment has been rising as part of a strategy that emphasizes increased renovation and modernization and less new construction. This share, in fact, climbed from about 33 percent in 1975 to roughly 38 percent in 1981 and is planned to increase to more than 42 percent in 1983. At current levels of investment, the use of machinery and equipment for domestic investment is rising by as much as 7-9 percent per year. Meanwhile, the regime would like to push production of consumer durables so as to reduce some of the unsatisfied demand in consumer markets. But the 3-percent average annual growth of machinery output achieved in 1981-82 suggests that the investment-defense-consumer competition for machinery products will become increasingly fierce.

The pressure on allocations to investment and the consumer could be eased in the near term in two ways: by holding down the growth in production of military hardware and by increasing net imports of machinery. In the longer term, more investment in the machinery sector and its supporting branches is needed.

Consumer Goods. The growth of output in light industry and food processing during 1981-82 paralleled that of industry as a whole. Despite large imports of grain, sugar, and other farm products, shortages of agricultural raw materials contributed to the weak performance of food processing and (to a much lesser extent) of light industry in 1981-82--although the impact on overall industrial performance was not large. Difficulties in attracting and retaining a qualified work force and low worker morale also constrained production. Compared with other industrial sectors, average wages in these two branches are lower and working conditions poorer.

Agriculture

The value of agricultural output, almost the same in 1981 as in 1980, increased by somewhat more than 3 percent in 1982. USDA estimates grain production at 180 million tons last year--an increase of about 20 million tons over 1981 but some 55 million tons short of plan. In the crucial livestock sector, meat output rose only fractionally in 1982 while milk production turned upward for the first time since 1977. Production of fruits and vegetables reached record levels and output of potatoes, sugar beets, and sunflower seeds increased substantially over the depressed levels of 1981.

Despite the 1982 upturn, farm output was still nearly 7 percent below the 1978 peak-year level. In fact, the results for 1981-82 have put most of the 11th Five-Year Plan agricultural production goals beyond reach. To reach the target for grain output, for example, annual production in 1983-85 would have to average 285 million tons--nearly 50 million tons greater than the record crop of 1978.

Transport

A substantial share of the responsibility for the falloff in industrial growth must be assigned to bottlenecks in the transportation of both raw materials and finished products. Plants were shut down intermittently, production lines were disrupted as machines and workers stood idle for lack of raw materials, and finished products piled up on loading docks. Total freight turnover, which had increased at an annual rate of 3.5 percent during 1976-80, actually fell by 0.2 percent last year.

The principal culprit has been the railroads, which shoulder the major part of the transportation burden in the USSR. The railroads are approaching the limit of their capacity to move ever more freight on the existing network with existing technology. Shipping natural resources from extraction areas in Siberia to processing and production centers in the Western parts of the USSR, in particular, has increased the strain on the railroads.

Consumer Well-Being

As Andropov noted in his early speeches, much remained to be done in the area of consumer welfare when he took office. According to our estimates, total per capita consumption increased in 1981 by about one percent--but then declined in 1982 by almost one percent. The official figures released by the Soviets confirm that in 1982 the USSR's standard of living at best barely held its own:

-- "Real per capita income"--a constant-price measure of consumption minus some services--levelled off.
-- Per capita retail sales (in constant prices) declined by more than ½ percent.

Meanwhile, the availability of quality foods declined generally. Per capita meat consumption, for instance, was down slightly in 1982 from its peak 1979 level.

Because food accounts for the largest share of the Soviet family budget and shortages must be dealt with on a daily basis, changes in food supplies are the Soviet citizen's leading barometer of his standard of living. Fearing widespread consumer dissatisfaction, the regime took steps to minimize the impact of food shortages on worker morale and productivity. The system of special distribution of foodstuffs through the workplace (which originated in the late 1970s and is considerably more extensive than the traditional system of special stores for selected elites) was substantially expanded.

Some signs of unrest--such as short-lived work stoppages--occurred during 1981-82, but expressions of discontent generally were contained or averted. Faced with long lines at state outlets, consumers dealt with the shortages in ways that did not threaten the regime--by buying higher-priced foods in the officially sanctioned free markets, for example, and through barter and black-market activity.

Defense

The discussion above centered on the general performance of the Soviet economy during the last two years. The issue of

Soviet military expenditures requires a longer-term focus. Our approach to defense-spending estimates yields much more confidence in medium- and long-term trends than year-to-year movements. In addition, we have recently revised our estimates in this area.

Our latest estimate of Soviet military expenditures indicates that defense spending in constant 1970 ruble prices continues to increase.* Unlike our past estimates, however, the new evidence incorporated in our present estimate indicates that in at least one major area, procurement of military hardware, Soviet expenditures have leveled off since 1976.

Total Soviet defense costs, measured in constant 1970 rubles, grew at an average annual rate of 4-5 percent during 1966-76 (about the same as reported in earlier estimates). Our new estimate, however, shows that like overall economic growth the rise in the total cost of defense since 1976 has been slower--about 2 percent a year. The rate of growth of overall defense costs is lower because procurement of military hardware--the largest category of defense spending--was almost flat in 1976-81.

New information indicates that the Soviets did not field weapons as rapidly after 1976 as before. Practically all major categories of Soviet weapons were affected--missiles, aircraft, and ships. This phenomenon was only partially offset by the tendency of newer, more sophisticated weapon systems to cost more. Costs in all other categories of Soviet defense continued to grow at historic rates over the entire 1972-81 period. Operations and maintenance costs, for example, grew by 3-4 percent annually; personnel costs increased by slightly less than 2 percent a year.*

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* We estimate Soviet defense spending annually in rubles to gain an appreciation of the Soviet defense "burden". See appendix A for a discussion of the methodology used.

We have only very preliminary estimates available for 1982. They indicate, however, that the trends in both total defense expenditures and procurement costs that we have observed since 1976 are continuing. The growth in total expenditures still appears to be considerably below the long-term average, and procurement spending remains roughly unchanged although at a high level, when measured in constant 1970 prices.

It should be stressed that trends in Soviet military spending are not a sufficient basis to form judgments about Soviet military capabilities, which are a complex function of weapons stocks, doctrine, training, generalship, and other factors important in a potential conflict. The cost estimates are best used to identify shifts in priorities and trends in resource commitments to military programs over an extended period of time. Moreover, the spending estimates do not give an appreciation of the large stocks of strategic and conventional weapon systems already deployed. Indeed, current levels of spending are so high that despite the procurement plateau noted, the Soviet forces have received since 1975 about 2,000 ICBMs and SLBMs, over 5,000 tactical combat and interceptor aircraft, 15,000 tanks and substantial numbers of major surface combatants, SSBNs, and attack submarines.

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* Our latest dollar estimates show the same trends since they are based on the same estimates of quantities of Soviet weapons. The estimated dollar costs of Soviet defense activities grew at slightly less than 2 percent over the 1976-81 period, a percentage point below the long-term average. Procurement costs in dollar terms did not grow during the 1976-81 period. We estimate Soviet defense spending in dollars to make comparisons with corresponding US outlays.

The impressive dimensions of the Soviet resource commitment to military activities also are very visible in comparisons with US defense costs. Our latest comparisons of US and Soviet defense programs show that despite somewhat slower growth in recent years the costs of Soviet defense activities still exceed those of the United States by a large margin. In 1981 the dollar costs of Soviet defense activities were 45 percent greater than US outlays; procurement costs alone were also 45 percent larger. A comparison in ruble prices shows that Soviet defense costs were 25 percent higher than those of the United States.

The slowdown in the growth of military procurement cannot be explained by any single factor. Initially, at least, the absence of growth in military procurement might have been attributed to natural lulls in production as older weapon programs were phased out before new ones began. The extended nature of the slowdown, however, goes far beyond normal dips in procurement cycles.

The continued slow growth since the late 1970s seems related to a combination of complex factors including technological problems, industrial bottlenecks, and policy decisions. Some funds budgeted for procurement may have been directed instead to research, development, testing, and evaluation (RDT&E) during this period because of the increasing complexity of weapon systems being researched.

The burden of defense in the USSR--the share of GNP devoted to defense--remained roughly constant at 13-14 percent through the 1970s because defense and GNP have grown at about the same rate. We had previously forecast that the defense share would increase by one-percentage point in the early 1980s.

Foreign Trade

After coping successfully with an earlier runup of hard currency debt, the USSR was hit in 1981 by a rising agricultural import bill and the need to provide hard currency assistance to Poland. The volume of grain purchases jumped by more than one-third, to 39 million tons. The deficit on merchandise trade rose to $4 billion, compared with $2.5 billion in 1980. The gap would have been even higher had Moscow not pushed exports (mainly oil) and trimmed imports (mainly machinery and equipment) in the last half of 1981. For the year as a whole, the Soviets managed to maintain the value of oil exports at the 1980 level as a 5-percent oil price rise offset the drop in volume.

The Soviets improved their hard currency payments position in 1982. By strongly pushing oil exports and holding down imports, the USSR slashed its hard currency trade deficit to $1.3 billion, or one-third of the deficit incurred in 1981. Exports were up 10 percent, with all of the rise coming from the sharp jump in oil sales. Moscow reduced the value of imports slightly by cutting purchases of Western grain (down 3 million tons), chemicals, and nontubular steel. Imports of machinery and equipment and of steel pipe rose sharply, however, largely as a result of deliveries for the Siberia-to-Western Europe gas pipeline.

The easing of its hard currency payments position, coupled with a probable fall in hard currency assistance to Poland, allowed Moscow to reduce its hard currency debt in 1982. By the end of the year, gross debt had fallen by an estimated $800 million and totaled $20.1 billion. Assets in Western banks were a record-high $10 billion at the end of last year.

Moscow's foreign trade policy for 1981-85 calls for an increasing share of its trade to be conducted with Communist countries. This policy probably reflects several factors: (1) a desire to hold down hard currency debt; (2) a long-standing policy of self-sufficiency, particularly an aversion to becoming too dependent on the West; and (3) a reaction to US trade embargoes that were imposed following the USSR's invasion of Afghanistan.

USSR: Percentage Growth in Foreign Trade[a]

	1981	1982	1981-85 Plan[b]
Total trade	4.2	8.2	4.0
With Communist countries	2.2	5.3	5.6
With non-Communist countries	7.8	10.8	2.3

[a] Calculated from Soviet data expressed in constant prices.
[b] Average annual rate of increase.

In point of fact, Soviet trade turnover grew more rapidly with the non-Communist countries in both 1981 and 1982. Paradoxically, however, Soviet net gains from trade with Communist countries (in [illegible] net exports [illegible]) rose substantially--because of a leveling off of real exports--while gains from trade with the West declined. The Soviet surplus on trade with all non-Communist countries rose from 1.0 billion rubles in 1980 to 3.2 billion rubles in 1982 (including major weapons exports to LDCs). At the same time, Moscow's 1980 surplus of 2.2 billion rubles with the Communist countries decreased to a 400-million ruble deficit (in 1980 prices) in 1982. All categories of Soviet exports to Communist countries except machinery and equipment leveled off in real terms in 1982. Sales of machinery and equipment declined because of a sharp reduction in sales to Poland; Warsaw cut back drastically on investment programs and could not absorb the machinery.

Reasons for the Sluggish Performance

The sluggish performance of the Soviet economy in 1981-82 partly reflected circumstances that were beyond the leadership's control. It stemmed mainly, however, from resource-allocation decisions made earlier by the regime and from long standing flaws in the USSR's system of planning and administration.

External Factors

Agricultural production in the USSR is hostage to weather conditions to a far greater degree than in most developed economies. Poor weather, drought in particular, continued to plague the farm sector during 1981-82 as the USSR suffered its third and fourth consecutive poor grain harvests. To a lesser extent, harsh weather also hindered construction, transportation, and industry, especially the production of electric power--a input critical to all sectors of the economy.

Economic performance was affected also by a reduction in the number of people entering the labor force. Increments to the working-age population have been declining since the mid-1970s because of the lower birth rates of the 1960s, an increase in the number of workers reaching retirement age, and a rising mortality rate among males in the 25-to-44 age range. The falloff became pronounced in 1980, and increments will remain very low throughout the decade.

A third limiting factor beyond the leadership's control was the continued escalation of the cost of extracting, refining, and transporting fuels and raw materials. Even though the Soviet Union is endowed with enormous quantities and a wide variety of raw materials, these materials in many instances have become increasingly inaccessible and the cost of exploiting them has risen sharply:

-- The economy has become increasingly dependent on the Siberian areas of the country for fuels and other raw materials. Developing these new areas requires large capital investments, particularly in construction.

-- Most of the new areas require social overhead capital--roads, housing, cultural, and service facilities--in addition to the basic facilities for exploration and exploitation.

-- The declining quality of readily available raw materials has pushed up capital requirements because of the cost of enriching poor-grade minerals and ores.

Policy Factors

Some of the difficulties of the Soviet economy in 1981-82 were the result of deliberate policy choices, as the earlier discussion of developments in industry and transportation suggests. At a time when investment needs were rising rapidly, the 1981-85 Plan called for investment spending to grow on average by less than 2 percent per year. This was by far the lowest planned increase in the post-World War II period. The marked slowdown, while partly forced upon the leadership by production constraints in the capital goods industries, also reflects a conscious attempt to switch to a more intensive pattern of growth--that is, growth through more efficient use of resources and more rapid technological progress.

In essence, the planned growth in GNP and its component sectors was predicated largely on increases in productivity. Increasing the efficiency of new plant and equipment, for example, is one of the central goals of the plan. But the assumption that slower growth in investment would be consistent with rising productivity did not prove out. Capital productivity in industry continued to decline at the same annual rate of 4-5 percent experienced in the last half of the 1970s.

Soviet planners also have made costly errors in allocating investment resources. In some cases, investment in large-scale capacities for improving the quality of raw materials such as iron ore has been emphasized at the cost of modernizing capacities for finished products. In other cases, the planners have increased the Soviet capacity for manufacturing intermediate and finished products while neglecting to develop the raw material supplies essential to ensuring full use of that capacity. Many of the domestic bottlenecks experienced in 1981-82 were the result of such planning mistakes.

Systemic Problems

Economic growth is also held back by the USSR's system of planning and managing the economy. Economic planning and management are highly centralized, with key resources allocated by administrative fiat. As the economy has grown in size and complexity, it has become more difficult to manage. Moreover, as in previous plans, many of the key 1981-85 goals are unrealistic, based on projected productivity increases that cannot possibly be met. The result is to intensify the pressure on lower level managers to protect themselves through such practices as the hoarding of material and labor resources--and thus to aggravate already serious bottlenecks.

Economic Policies Under Andropov

As the first two years of the 1981-85 Plan neared completion, it must have become clear to Soviet leaders that their economic strategy was not working. The formulation of the 1983 Plan, undertaken before Brezhnev's death, provided an opportunity to make midcourse corrections in Soviet economic policies. Even as late as November 1982, Andropov's sudden assumption of power offered a chance for change. Nonetheless, on the basis of information published on the 1983 plan and what has happened since, we conclude that Andropov is still holding [illegible] to the course set by Brezhnev. The possible exception is investment policy.

Investment

Because capital formation is so important in determining the directions of economic development, investment plans provide particularly useful clues to Soviet economic policy. Although information for 1983 is sparse, mid-year reported results do raise the possibility that the original five-year plan for total investment has been changed.

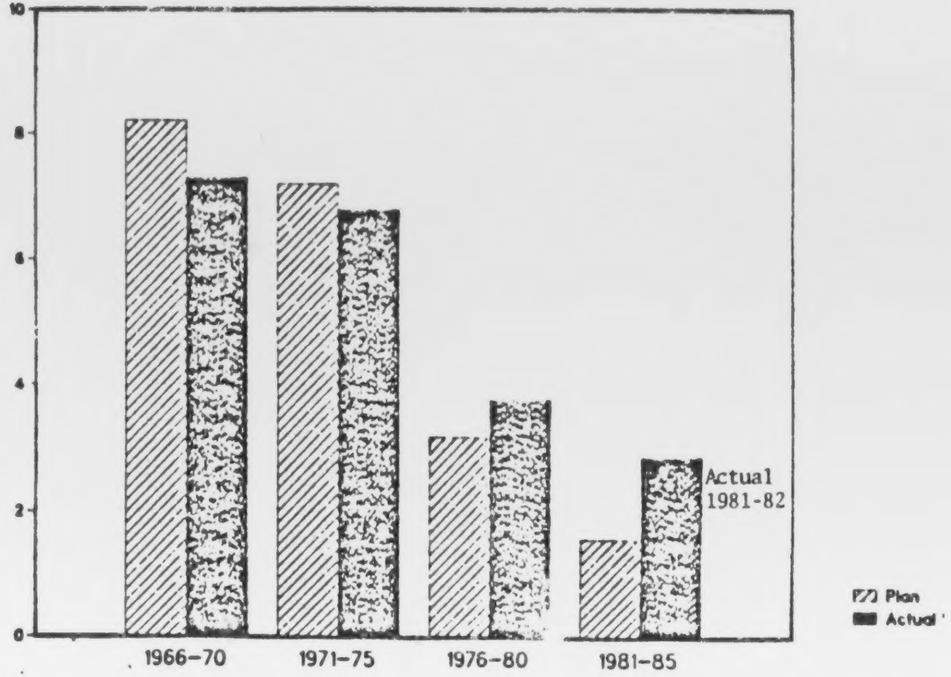
The investment policy laid down in the 1981-85 Plan called for the lowest rate of investment growth in the post-World War II era--about 1 ½ percent per year on average. Actual investment expenditures, however, have grown somewhat faster than planned--by roughly 3 percent in 1981 and 1982, respectively (figure 4). Investment was scheduled to rise by nearly 2 ½ percent in 1983, again slightly above plan. But results for the first six months indicate that investment may be growing at a much faster rate. State capital investment, which makes up about nine-tenths of total capital investment, increased by 6 percent compared with first-half 1982.

The step-up in investment could signify a change in economic policy. Indeed, the premise that increases in productivity required by components called for in the 1981-85 Plan are compatible with a slowing rate of investment has been challenged vigorously and publicly in the Soviet Union over the last two

Figure 4

USSR: NEW FIXED INVESTMENT

(AVERAGE ANNUAL PERCENTAGE RATE OF GROWTH)



years. The sharp increase in investment growth in first-half 1983 could mean that the proponents of higher investment spending are winning out. In any case, much of the acceleration has been made possible by the industrial recovery (discussed below), which permitted increased production of machinery and equipment and construction materials. Some of the growth in investment is also the result of an increase in net imports of machinery and equipment in 1982 that are just now being assimilated into industry. The volume of imports of machinery jumped by about one-third in 1982.

Defense

Andropov's position on the share of resources that should go to the military is unclear. In his November 1982 plenum speech, he stated only that "defense requirements as usual have been sufficiently taken into account." During a highly-publicized visit to a Moscow machine-tool factory, however, he implied that a healthy economy is a precondition of military power--suggesting that defense could no longer count on retaining unquestionable priority in the distribution of resources.

The little evidence that is available indicates Andropov has not accelerated Soviet military spending. For example, the leveling off of weapons procurement in recent years has been accompanied by an increase in the share of machinery alloted to civilian uses. That trend, as noted above, appears to have continued in both 1982 and 1983. While we cannot be sure what Andropov's policy is, or will be, Soviet military capabilities will still increase substantially over the next several years even if the rate of growth of procurement of military hardware does not increase. The USSR is already investing so much in military hardware that merely continuing procurement at the existing level would provide very large annual increments in holdings of military equipment.

Agriculture

There also are no indications of significant change in agricultural policy since Andropov took power. Plans for crop production in 1983 have been set largely at the levels indicated originally in the 1981-85 Plan, and the General Secretary also appears to have thrown his full support to Brezhnev's Food Program.

Mikhail Gorbachev, the Soviet agricultural czar, has been lobbying hard for the more rapid and effective implementation of the part of the program dealing with structural reorganization--the so-called RAPOs.* Soviet press reports and conversations of Soviet officials with Westerners indicate that the RAPOs have been resisted by the ministries and state committees involved. As a result, lack of control over service organizations that supply equipment, repair services, agricultural chemicals, and construction services has severely hampered the effectiveness of the RAPOs. To rectify the situation, the Andropov regime issued a decree in late July which attempts to merge the interests of farms and service organizations by tying rewards for service organizations to growth in the output and productivity of the farms that they serve.

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* A RAPO is a self-financing organization that includes all farms, service agencies (e.g. repair centers), and processing enterprises in a given district.

As a means of providing better incentives for agricultural workers, Gorbachev also is actively promoting the collective contract system--an aspect of the Food Program that received relatively little attention before Brezhnev's death. In this system, farm workers are rewarded according to the size of the harvest rather than receiving hourly or piece work rates.

Andropov's support of the Food Program is also indicated by the continued large share of investment allocated to agriculture and the sectors supporting it in 1983. Although some Soviet officials believe that agriculture is already receiving a disproportionate share of the economy's resources, investment for farms and supporting industries is slated to rise by nearly 4 1/2 percent this year--a higher growth rate than that scheduled for total investment--and will amount to about one-third of total investment. This is the share of investment resources that Brezhnev promised in the 1980s at the special Central Committee plenum on agriculture in May 1982.

One aspect of the Food Program that Andropov has been slow to embrace is the call for increased private plot production--which now accounts for about one-fourth of total Soviet agricultural output. Little has been done, for instance, either since Andropov took over or before, to assure private farmers supplies of much needed feedstuffs, seeds, fertilizers and pesticides, and small machinery and farm implements. Still, in an April speech to regional party leaders, the General Secretary implied that every rural family ought to raise livestock. Because agriculture will have difficulty in meeting its goals over the next decade, Andropov is not likely to curtail private agricultural activity, despite his apparent lack of enthusiasm for it on ideological grounds.

Consumer Goods and Services

The new regime has shown concern for the welfare of the population in a variety of ways. First, a flurry of decrees has been published this year calling for improvements in the level of daily services and in the supply of consumer goods provided to the population:

-- A resolution was adopted by the Central Committee in February demanding that ministry, department, and union republic officials perform better in constructing housing and consumer service facilities.

-- A joint Central Committee-Council of Ministers resolution was published in March calling for an expansion of the number of repair and cleaning shops; more personal services such as hairdressing, film developing, and the rental of consumer durables; and the establishment of more convenient working hours in the service sector.

-- A joint Central Committee-Council of Ministers decree passed in late April discusses "the additional production" of consumer goods, contains unusually blunt warnings to consumer ministries to shape up, and instructs several state committees to prepare new measures to improve planning, incentives, and price-setting in the consumer goods sector.

The priority the leadership has given the Food Program in part also mirrors high level preoccupation with living standards. Judging from Soviet press reporting on Politburo meetings, for instance, the Andropov government has devoted more time to agriculture than any other domestic issue. The recent reorganization of the Central Committee to include a separate Department of Light Industry and Consumer Goods also suggests that consumer interests are being given greater attention. Finally, the regime is continuing the campaign initiated under Brezhnev to increase the production of consumer goods in heavy industry and may intend to import more machinery for use in consumer industries.

Nonetheless, the regime has little room for maneuver on consumer issues until the Food Program pays some return and until more investment can be spared for the production of soft goods and consumer durables. In his June plenum speech, in fact, Andropov stressed that improvement in the standard of living will be slow. Increases in income, he has maintained on several occasions, must be closely linked to increases in labor productivity.

Foreign Trade Policy

The foreign trade plan for 1983 suggests that Moscow still is bent on increasing trade with its Warsaw Pact partners and other Communist countries at the expense of trade with the West. In his annual report to the Supreme Soviet, Nikolay Baybakov, Chairman of Gosplan, said that trade with Socialist countries would increase nearly 8 percent--more than double the annual rate of the past two years--and would reach 58 percent of total Soviet trade turnover. He implied that trade with capitalist countries would drop about 4 percent. Aside from the desire to reduce the reliance of CEMA countries on the West, a likely explanation for this objective is that Moscow is planning on some decline in its hard currency earnings capacity this year (perhaps because it expects reduced earnings from exports of oil and arms, both of which hit record highs in 1982) and is purchasing less grain.

Reductions in Soviet shipments of oil to Eastern Europe suggest that East European countries may not receive increases in deliveries of raw materials from the USSR. It also appears that the Soviet Union will pressure its Warsaw Pact allies to reduce their deficits on bilateral trade with the USSR, and boost their exports, especially those of higher quality goods, to the USSR. But the East Europeans--facing critical economic and financial problems of their own--will be neither willing nor able to provide Moscow much assistance in providing substitutes for imports from the West. The East European countries would be hard pressed to increase their exports of machinery and equipment and of manufactured consumer goods even more than now planned.

If the East Europeans cannot boost their exports to the Soviet Union enough to eliminate the deficits, Moscow could help itself by scaling back its deliveries to Eastern Europe of goods marketable in the West. Because further cutbacks in raw materials deliveries would be a serious blow to Eastern Europe, we have thought that the Soviets would be reluctant to take such action. On the other hand, Moscow may be more willing now than in the past to squeeze Eastern Europe. Martial law appears to have controlled tensions effectively in Poland, and there has been little overt discontent in any of the other East European countries despite harder economic times.

Other Initiatives

The major new element of economic policy this year is the "discipline campaign." Andropov does not believe that greater discipline alone will cure the economy's ills, but he sees it as a necessary beginning. He apparently is confident that coercion or the threat of coercion can increase worker discipline and that greater discipline will raise productivity.

The campaign is designed to tighten discipline all around, including management discipline. Andropov has, in fact, fired some allegedly corrupt or incompetent officials. The Minister of Railways, for instance, was fired shortly after Brezhnev's death. Minister of Internal Affairs Nikolay Shchelokov also was removed from his post at the plenary session of the Central Committee in June, reportedly because of involvement in corrupt activities. In their places, Andropov has brought in some younger, better-educated, and perhaps more innovative officials. To date, however, the campaign appears to have been directed primarily against blue-collar workers. In particular, the regime has sought to compel workers to put in a full day's work. Both internal security forces and militia teams are being used to search for workers absent from their jobs without permission.

A second phase in the campaign was introduced this August. A new decree introduced sanctions (loss of vacation, loss of pay, and even dismissal) against workers AWOL or drunk on the job and offered financial rewards to more productive laborers. Judging from leadership statements, additional measures to reinforce labor's commitment to better job performance are likely to be forthcoming.

In the more ideologically sensitive area of reforming the planning and management of the economy, the new regime has introduced some limited measures designed to decentralize decisionmaking in both industry and agriculture. A mid-July joint party-government decree is the most comprehensive step in this direction to date. This "economic experiment" involves five industrial ministries and will begin in January 1984. The decree gives enterprise management more latitude in using investment and wage funds, largely in an effort to spur technological change and innovation. It also ties worker and management benefits more closely to enterprise performance, with contract fulfillment as a key success indicator.

Andropov's endorsement of small labor teams in industry, construction, and agriculture also qualifies as an attempt to increase local initiative in the decisionmaking process, this time at the lowest production level. The brigade organization of industrial labor and collective contract system for farm workers allow the enterprises increased flexibility but at the same time make profits and wages more dependent upon final results.

The Andropov leadership has also instituted a new law on labor collectives--the first nation-wide labor code. Adopted by the Supreme Soviet session in June, it calls for increased worker participation in management. It does not, however, materially expand workers' rights or give them a significant managerial role. Mainly, it increases labor obligation to help implement plans and campaigns imposed from above. The attempt to represent the law as giving workers a voice in economic management suggests an effort to improve worker morale--and productivity--by creating the illusion of greater power for labor.

Assessment of Andropov's Policies

Has the Soviet economic game plan changed in any essential way since Yuri Andropov replaced Leonid Brezhnev? The answer is no. Continuity has been far more pronounced than change. Soviet planners, for instance, are not trying to put the economy back on the five-year plan track with the possible exception of agriculture. The growth target for industrial production in the 1983 plan (3.2 percent), for example, is well below the average annual rate of growth implied by the 1981-85 Five-Year Plan (4.7 percent). Although there may be new emphasis on some of the economic policies inherited from the previous regime, the central core of policies laid down by the new leadership is within the bounds of those established during the Brezhnev years.

-- One feature of Andropov's investment policy--more renovation and modernization and less new construction--is an intensified version of an investment strategy that has been followed for seven years with little success. There is nothing new in it; it was a main feature of the 1976-80 Plan and a central part of the current five-year plan.

-- In one area, the priority given to overall investment, Andropov's policy may be different from Brezhnev's. Investment has been stepped up in 1983, although we cannot be certain that its priority will be sustained.

-- Andropov has stuck with the Food Program as the answer to agricultural problems.

-- In consumer affairs, there has been no real change or innovation. Andropov has exhibited solicitude for consumers, but has not backed up that concern with new programs or more resources for consumer industries.

-- Nor has Moscow's trade policy or the structure of trade changed much under Andropov. More trade with the West would seem helpful in easing Soviet economic strain since East European products are, for the most part, not viable substitutes for Western goods.

-- The changes in planning and management announced so far all have roots in the Brezhnev era if not earlier. Andropov's has retained strong central control over the key economic decisions--for example, price formation--while tolerating some devolution in day-to-day decisions.

The new trend we have observed in military procurement, together with continuing domestic economic problems and the recent political succession, does raise important questions about the future of the Soviet defense effort. We previously had estimated that defense spending would continue to grow in real terms through at least 1985. We still consider that likely. The question is whether the Soviets will rebound from the procurement slowdown, so that defense spending will return to (or even exceed) the 4 to 5 -percent average annual growth rate of 1966-76, or whether little or no growth in procurement will slow the increase in overall expenditures for some time. Because we do not fully understand the causes of the slowdown, we cannot provide a reliable answer.

The new regime, which apparently came to power with the support of the military, may well be under pressure to speed up defense spending. For example, in the first three years of this decade we believe the Soviets have already had as many systems under development as in each of the previous two decades. Steady expansion of production floorspace has occurred since the mid-1970s providing the Soviets with the potential to translate the new systems into deployments in the field. Any major effort to sharply accelerate the level of military procurement, however, could make it even more difficult to solve the fundamental economic problems facing the Soviets. It would require lower civilian investment and slower growth or even a fall in per capita consumption and could, over the long run, erode the economic base of the military-industrial complex itself. Moreover, we do not know how quickly the Soviets will be able to overcome the problems that may have contributed to the recent procurement slowdown: some appear to be pervasive and will be difficult for the Soviet system to correct. Regardless of how the leadership decides to approach the resource allocation issue, it will not be able to avoid it for long. The planning cycle for the 12th Five-Year Plan--1986-90--is already under way.

Outlook for 1983

This year some of the economic pressures on the Andropov leadership should ease slightly. After two years of low growth in 1981 and 1982, the economy seems poised for a rebound in economic performance. Based on statistics available for the first seven months of 1983, we estimate that GNP will rise by 3 ½ to 4 percent--well above the approximately 2 percent rate of growth achieved in both 1981 and 1982 and close to the 4 percent annual rate of growth implicit in the 1981-85 Plan.

All major sectors of the economy are doing better this year. After several years of steady decline, for example, industrial performance has begun to improve. Industrial production was almost 4 percent higher in the first seven months of 1983 than in the comparable period of 1982. The rebound in industry probably owes much to the better than normal winter and spring weather conditions, which permitted some rebuilding of stocks of fuels and other inputs less in demand when the weather is mild. Most important, better weather appears to have eased transportation difficulties, thus relieving bottlenecks generally.

Other factors that have contributed to improved industrial performance include recent additions to capacity, notably in steel and chemicals; managerial personnel changes; and perhaps greater effort reflecting a sense that, with the change of leadership, a period of drift had ended. In this connection, the discipline campaign probably played a part in the recovery from the poor performance in 1981-82 by eliciting greater effort from the work force and putting some managers in fear for their jobs.

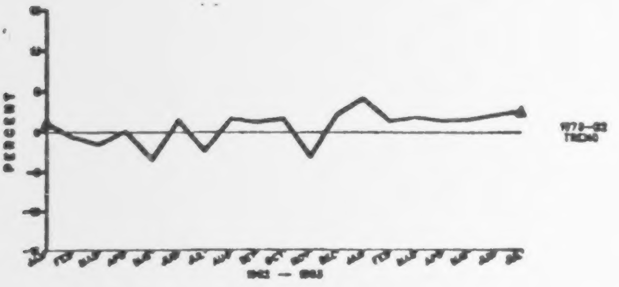
The role of the Andropov administration in the industrial recovery seems to be minor, however. The production gains reported thus far reflect in large part recovery from the poor performance at the beginning of 1982. Output of most industrial commodities actually began to pick up on a seasonally-adjusted basis in mid-1982, so that the overall contrast between the two years will not be so favorable to 1983 by yearend (figure 5). We estimate that industrial production will grow about 3 percent this year, somewhat higher than the 2.4 percent annual rate of growth achieved in 1981-82. Under Andropov, industrial production has returned to the growth path characteristic of 1978-82, not to the higher rates of earlier periods.

Following four consecutive years of poor agricultural performance a substantial recovery is in the cards for Soviet agriculture in 1983. We expect total farm output to increase by 7-8 percent compared with somewhat more than 3 percent in 1982 and almost no growth in 1981. Total production of farm products this year, in fact, could be roughly 1 percent above the previous high of 1978. Barring a major deterioration in weather conditions, according to USDA, a grain harvest of 200 million tons is likely, well above the estimated 158-million ton crop informally reported by the Soviets for 1981 and the 180 million

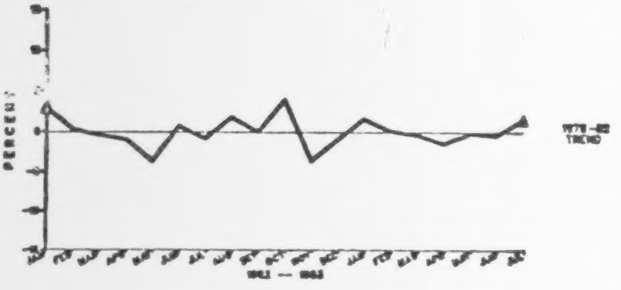
Figure 5

USSR: Deviation of Industrial Production From Recent Trend*

Civilian Industry



Fuels and Power



Industrial Materials

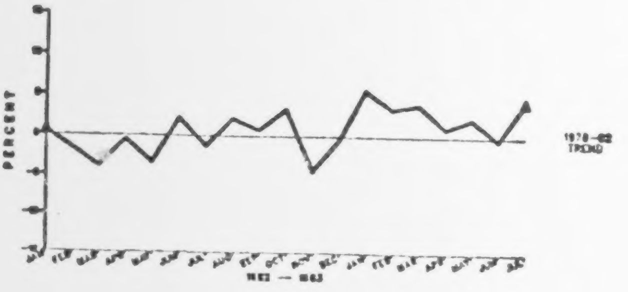
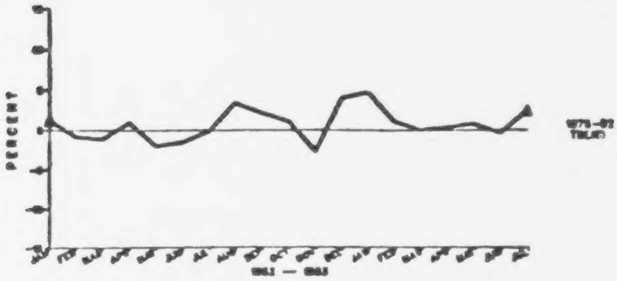
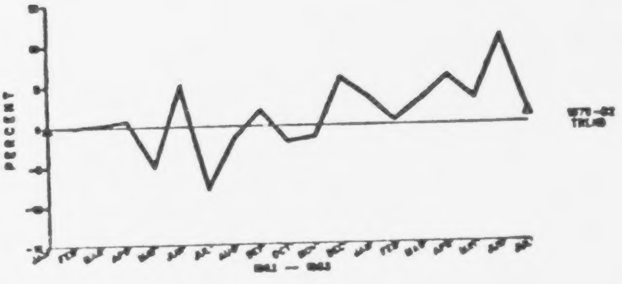


Figure 5 (cont.)


Civilian Machinery


Consumer Goods

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* The monthly production indexes are calculated from a smaller sample of commodities than those represented in the annual production indexes. The average trend rate of growth shown for 1978-82 in this figure will therefore differ from those based on full-year data. Nevertheless, we believe that the samples used in extending the monthly indexes are comprehensive enough to signal changes in growth rates over time, or--as in this figure--to compare performance pre-Andropov and post-Andropov.

ton harvest estimated by USDA for 1982. Both of these estimates are well below the 1978 record of 237 million tons. The outlook for other major crops is also good. Production of sunflower seeds, sugar beets, vegetables, potatoes, and cotton is expected to exceed the average of recent years.

In the crucial livestock sector, meat output from state and collective farms--which produce about two-thirds of total Soviet meat--reached a record level during the first seven months of 1983. A number of factors were at work: (1) the quantity of forage crops harvested last fall was a record; (2) relatively mild weather last winter coupled with an early spring this year bolstered Soviet livestock feed supplies; (3) the increased availability of high-protein feeds--particularly soybean meal and single-cell protein--has improved the efficiency of feed rations this year (that is, the amount of product produced from a unit of feed). With herd numbers now at record levels, the stage is set for substantial growth in total meat production this year after four years of relative stagnation. Output could reach 16 million tons--5 percent above the 1979-82 average--if grain production reaches or exceeds 200 million tons, at least 20 million tons of grain are imported, and ample supplies of forage crops remain available through the rest of the year.

Meanwhile, the availability of quality foods has increased somewhat since Andropov came to power, although not enough to permit relaxation of the informal rationing system for selected food items. Surveys of private farm markets and state retail stores, for instance, have shown increased supplies of most foodstuffs. Various reports also suggest that in many regions the food shortages prevalent since at least 1980 have become less severe.

The Soviets are still finding it hard, however, to provide adequate supplies of nonfood consumer goods. Retail trade turnover in real terms grew by 1 ½ percent in the first six months of 1983 compared with first-half 1982 while the average monthly wage of workers increased by more than 2 percent. The continued low growth in retail sales is caused partly by production problems in the industries manufacturing soft goods and consumer durables. The production of textiles, for example, has been hampered by shortages of quality cotton.

Imports of nonfood consumer goods will help somewhat. Moscow bought about $10.5 billion worth of these goods last year, almost 70 percent of them from Eastern Europe. In internal prices these purchases accounted for a substantial share of retail sales of nonfood consumer goods--about 15-20 percent.

Railroad performance has also improved markedly in the first 6 months of 1983. Freight turnover climbed to 1.8 trillion ton-kilometers, a 3.7 percent increase over first half 1982--it had fallen 2.3 percent during the same period in 1982. A number of factors may have been responsible. The relatively mild weather experienced so far this year has certainly helped. The priority attention given to the transport sector by the new leadership probably is also a factor. Politburo member Geydar Aliyev was given special responsibility for overseeing the railroads earlier this year, and a campaign to enlist industrial enterprises and other shippers in the repair of damaged freight cars has been instituted. Still, reports of supply disruptions and delayed shipments are continuing. As in industry, the record in the second quarter of this year suggests that the initial burst of higher performance in Andropov's early months is not being sustained (figure 6). Because the problems in the transport sector cannot be resolved quickly, transport snarls can be expected to be a drag on the economy over the next several years.

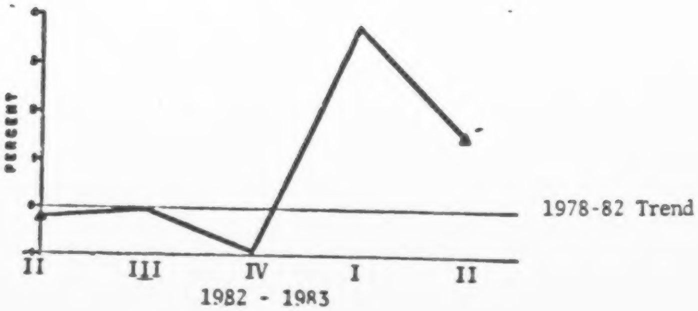
With brighter prospects in agriculture, Soviet planners will not have to worry so much for the time being about hard currency availability. Nonetheless, we believe that the hard currency trade deficit will increase slightly in 1983. In the first half of the year both exports and imports remained at about first-half 1982 levels. A drop in agricultural purchases was offset by increased purchases of pipe and machinery and equipment and of Libyan oil for resale to Soviet customers in the West. Oil sales for hard currency could remain below the 1982 level for the year as a whole, however. The USSR may feel it cannot cut deliveries to Eastern Europe again this soon.

Longer Term Outlook

A stronger economic showing this year would help Andropov politically, but it would not--in our view--foreshadow a higher growth rate over the longer term. The problems that have constrained growth since the late 1970s have not gone away; some of them, in fact, are just now reaching peak severity.

Figure 6

USSR: Deviation of Railroad Freight
Turnover From Recent Trend



Slower Growth in Labor and Fixed Capital

For example, the increment to the working age population--about 389,000 persons--will be lower this year than at any time in the last two decades (figure 8) and will continue to diminish through 1986. Growth of capital stock also will slow during the 1980s because of the slowdown in investment that has occurred since 1975. Unless plans for investment change drastically, we project that the supply of labor and capital to the economy in the 1980s will rise by only 2 ½ percent per year during the remainder of the 1980s compared with an average annual increase of nearly 4 percent in 1970s.

Given the slower growth of labor and capital, elevating growth above the recent trend rate of about 2 percent a year would require a dramatic reversal of the prevailing trend in productivity. For example, sustaining the GNP growth rate of 4 percent per year that prevailed in 1971-77 would be possible only if productivity increased by nearly 1 ½ percent per year. In fact--as the tabulation below shows--the combined productivity of inputs of labor, capital, and land has been decreasing for over a decade:

Average Annual Percentage Change[a]

	1966-70	1971-75	1976-80	1981-82
GNP	5.3	3.7	2.7	2.1
Inputs of labor and capital	4.1	4.2	3.6	3.1
Factor productivity	1.1	-0.5	-0.8	-1.0

[a] From appendix C, Table 14.

The likelihood that the Soviets can recapture the productivity gains of the late 1960s is small.

-- The discipline campaign may be exacting a somewhat greater effort from Soviet workers, but, judging from numerous reports of half-hearted enforcement and of workers often ignoring appeals and threats designed to make them work harder and longer, the long term impact would appear to be marginal.

-- A substantial improvement in real incentives seems unlikely, Andropov himself having indicated that the standard of living, at best, will rise only slowly over the next several years.

-- Andropov's evident reluctance to undertake major systemic changes (discussed below) is a significant barrier to substantial improvements in efficiency or accelerated technological progress.

Imbalances

In addition, many of the unfavorable developments that converged to slow industrial growth in the late 1970s will continue to do so during the rest of 1980s. Because planned investment will be inadequate to add capacities needed for planned growth in output--especially in the extractive branches where both depletion rates and investment costs will continue to rise rapidly--shortages of raw materials and a deterioration in the quality of many materials will continue. In particular, slow growth of steel production will constrain machinery output and hence investment. Spot shortages of energy of the sort experienced in recent years will continue. Shortfalls in chemicals production also will hamper production in a variety of industries to which it provides raw materials, and slow growth of construction materials output will be a further drag on investment. Transportation also will continue to be a problem, particularly the railroads which will continue to operate under strain.

In agriculture, Andropov faces the same problems as Brezhnev in improving agricultural efficiency: bureaucratic resistance to changes in organization, weak incentives for farm workers, insufficent skills in the farm labor force to manage production and to use and maintain machinery properly, and a lack of economic infrastructure (roads, storage areas and the like) in rural areas. The greatest impediment, however, remains the failure to allow farms more freedom to make decisions at the local level about the composition of output and about planting and harvesting schedules.

In this connection, although Moscow is placing increasing emphasis on agricultural self-sufficiency, imports of 20-30 million tons of grain and 2-3 million tons of oilseeds and oilseed meal will be needed annually to support livestock expansion plans during the next several years, even with normal harvests. The Soviets are committed through long-term trade agreements with the United States, Canada, Argentina, and some smaller suppliers to purchase about 20 million tons per year through 1985.

On the other hand, we believe that the Soviet energy situation will not seriously constrain economic growth during the 1980s. This judgment is based on our latest study of the Soviet oil industry and our resulting reassessment of Soviet energy prospects into the 1990s. The principal conclusions of these two studies are as follows:

-- The combined output of oil, natural gas, and coal will increase by 10 to 12 percent in 1981-85 compared with the 17 percent planned for this period and the 22 percent achieved in 1976-80. In the latter half of the decade energy production will be about 6 percent greater than in 1981-85. Indeed, with oil output expected to be in decline by the late 1980s and coal production stagnant in terms of energy content, the increases in fuel availability during the remainder of this decade will be largely the result of rising gas output.

-- The Soviet Union has thus far averted the downturn in oil production that CIA had earlier predicted by virtue of an enormous, brute-force development effort that has tapped a petroleum reserve base larger in size than we previously believed. The cost of doing this has been high, but we think that the Soviets have already allocated enough investment resources to the oil industry to permit them to come close to their production target of 12.6 million b/d by 1985.

-- Because Moscow is likely to continue to increase the total amount of economic resources going to the oil industry during the 1986-90 Plan but at a slower rate, oil production probably will plateau by the middle of this decade and then subside slowly.

- Increments in energy production will become increasingly expensive, and the USSR will find it hard to maintain oil exports--a development that will constrain hard currency earnings.
- All things considered, however, we no longer believe that major energy shortages will make a substantial difference for growth in GNP unless things go very badly in the oil sector.

Work Incentives

An integral feature of Andropov's campaign to tighten labor discipline and stimulate productivity is his strong support for linking wages and bonuses to the contribution of the individual worker and tying remuneration more directly to production results. In his public statements Andropov has harshly attacked the long-time practice of wage leveling because it conflicts with the priority the regime has assigned to raising labor productivity. But long cultural conditioning in the work force and the difficulty of reversing trends entrenched for the last 20 years will present substantial obstacles to broad use of increased wage differentials.

Serious obstacles also stand in the way of continued implementation of the discipline campaign. Public tolerance of a tough discipline drive 30 years after Stalin is likely to be tenuous and transitory. In the current labor market, moreover, management will be reluctant to crack down on workers, who can easily quit and find jobs elsewhere, often at higher pay. Firing workers also goes against the grain of Soviet society, which guarantees a right to a job. Punitive measures against the worst offenders may help, but they cannot substitute for economic reforms to remedy fundamental problems with the incentive system.

There are also political risks in pushing the anticorruption campaign too far. Young party workers who were frustrated by the slow rate of promotions under Brezhnev may welcome a change, but the fear of a purge reportedly impelled many regional officials to oppose Andropov's succession. Any wholesale drive to purify the party could provoke further resistance.

Prospects for Relief Via Foreign Trade

In our judgment, the regime will not be able to rely substantially on increased imports to relieve resource pressures in the domestic economy during this decade. Our projections indicate that--barring another round of spiraling oil prices--Soviet hard currency purchasing power will not rise significantly through 1990. Consequently the USSR will have difficulty financing more than modest growth in hard currency imports unless it is willing to accept a sharp increase in its debt. Western credits are one--and a relatively immediate--means of financing additional hard currency imports. But Soviet debt management policy would first have to become less conservative, and Western governments would probably have to provide significantly greater encouragement and guarantees to Western banks.

Nor will the Soviets be able to go much further in reducing net exports to Eastern Europe. Most East European countries are struggling to sustain some positive growth in GNP while putting their hard currency balances in order. The USSR and its East European allies seem unable even to agree on an agenda for a CEMA summit (proposed by Brezhnev two years ago) to discuss their mutual economic concerns. The principal issue in dispute is a Soviet push for greater economic integration, which would give CEMA, but in reality the Soviets, far-reaching authority over planning and production in individual countries. The East Europeans oppose such integration because they fear it would tie them even closer politically and economically to the USSR. The East Europeans--who want guarantees of future deliveries of Soviet energy and raw materials--also fear that Moscow would use the summit to announce additional cuts or to impose harder conditions on their energy and raw material exports to Eastern Europe.

Potential for Better Performance

The regime could improve the performance of the economy in a number of ways. Some investment resources, for instance, could be redirected to sectors where their payoff is greater than at the present time. The current investment plan is lopsided and lacks balance; it stresses development of energy and agriculture at the expense of other sectors also vital to economic growth. A greater return could probably be achieved by shifting more investment to such sectors as machinebuilding, transportation, and ferrous metals. Finally, holding down growth in defense spending would free up resources that could be used to bolster the civilian economy.

Some gains could be achieved also by identifying those areas in the economy where mismanagement and administrative efficiency are worst and replacing the managers responsible at all levels with more competent people. Indeed Andropov has removed a number of managers, although the shifts thus far have not been as dramatic as some Soviet officials had anticipated. Clearly there is a good deal of dead wood to be removed. Whether political obstacles and bureaucratic opposition will prevent a managerial shakeup on a broad scale is still uncertain. After a few years, however, unless the system changes to promote innovation or managerial initiative, a new generation of administrators would probably fall back into the practices of their predecessors.

The greatest potential for economic gain in the long term, however, lies in more "radical" measures that would alter Soviet economic mechanisms. While we believe that caution and conservatism characterize Andropov's approach to economic change, we cannot rule out the possibility that he might yet introduce more innovative economic programs. Andropov's freedom of action in his first year as General Secretary probably has been restricted. He is bound, to some extent at least, by an annual economic plan made before Brezhnev's death. Moreover, still lacking an independent political base and still much indebted to those who helped elevate him to power, he must move with circumspection.

Since he replaced Brezhnev, Andropov has been extremely candid in acknowledging his dissatisfaction with the performance of the economy and has indicated on occasion that some problems may stem from built-in systemic shortcomings. In a major speech in mid-August, for instance, he underscored the necessity for changes in planning, management, and economic mechanisms before the start of the 1986-90 Plan period and expressed dissatisfaction with the pace at which the economy is improving and the lack of vigor in the search for solutions to its problems. From time to time, he has also encouraged wide-ranging public discussion and debate on what ails the Soviet economy and how to improve its organization and management.

The major constraint, however, in changing the Soviet economic system is that Andropov and the rest of the leadership--for compelling cultural, economic, and political reasons--will not dismantle the command economy and replace it with some form of market socialism. A planned economy is all Soviet leaders have ever known. They do not understand the economic rationale for markets and believe that, however efficiently markets may operate at the enterprise level, they necessarily produce chaotic results on a economy-wide scale. Planning, by contrast, is not only mandated by "Marxism-Leninism", but it is seen as being responsible for the elevation of the USSR to world superpower status. Andropov's adherence to this line of thinking is made crystal clear in his recent article in the party's ideological journal Kommunist. There he states that only change within the existing bounds of socialism will be considered.

Consequently, Andropov is likely to rely primarily on Brezhnev's legacy of programs and proposals for change worked out between 1978 and 1982. Thus the central issue now facing the leadership is what direction to move in carrying out already approved policies, what to select from a menu of fairly well-known alternative ideas, and what commitment it is prepared--or able--to undertake in attempting to enforce its will. A case in point is the recently announced economic experiment--Andropov's only significant new program to date. When closely scrutinized it is very limited--it is confined to a few selected ministries and contains little that is new.

We are likely to see an increase in the number and variety of such reform proposals. In his mid-August speech, Andropov said that changes would be made before the start of the 1986-90 Plan but that they would be undertaken carefully and only after unhurried evaluation of large scale experiments. In addition, a high level committee under the leadership of new Central Committee Secretary Nikolay Ryzhkov was formed earlier this year to review the party's options for changing the economic system and given a year or more to report back.

Given the emphasis on study and small-scale experiments, we think that reforms of organization and management will have little impact on the economy during the next few years. Indeed, the improved performance in 1983 may even reduce the pressure for economic change in the short run.

Striking a Balance

A point stressed in our testimony last December before the Joint Economic Committee of Congress still holds. Despite its problems, the USSR is not on the verge of economic collapse. The

Soviet economy is the second largest in the world, with a large and literate population, a huge industrial plant, and an enormous endowment of natural resources. Moreover, a highly centralized, rigid system of administering the economy enables the leadership to mobilize resources to focus on key objectives. The USSR has found ways to muddle through periods of economic difficulty in the past, and it will do so again in the 1980s.

We emphasize that economic growth is likely to continue--not at the rapid pace of this year, but at a trend rate of about 2 percent a year.

We would also note that the strains on the Soviet economy may be somewhat less than we thought a year ago.

-- First, the outlook for oil production looks less unfavorable. To recapitulate, we now expect that production will hold roughly steady through the mid-1980s and then will fall only gradually through 1990.

-- Second, we have revised downward our estimates of how fast defense spending has been growing, implying greater availability of resources for other uses than we had estimated earlier.

-- Third, despite Andropov's basic caution and conservatism, his more energetic approach to improving the existing economic system makes Soviet economic prospects seem slightly brighter than they appeared last year.

space programs, railroad and construction troops, and internal security forces. The ruble estimates are customarily presented in terms of this broader definition.

Estimates of Soviet defense costs are computed by resource category. These are defined as follows:

-- Investment - the costs of replacing, modernizing, and expanding forces through the procurement of weapons and equipment, including major spare parts, and the construction of facilities.

-- Operating - The costs of personnel, equipment maintenance, and logistics associated with the routine functioning of the Soviet armed forces.

-- RDT&E - the costs of exploring new technology, developing new weapons systems and developing improvements to existing systems.

We calculate the ruble and dollar costs of all Soviet defense activities except RDT&E by identifying and listing Soviet forces and their support apparatus. Our model contains a description of over 1,000 distinct defense components--for example, individual classes of surface ships; ground force divisions, divided into categories on the basis of type and readiness level; and air regiments, categorized by aircraft type for each service--and our latest estimates of the order of battle, manning, equipment inventories, and new equipment purchases for each of those components.

Although we are confident in the basic trends, there are uncertainties inherent in these estimates. We are fairly

Appendix A

Estimating Soviet Defense Expenditures

This appendix explains in some detail the methodology we use to derive the dollar and ruble estimates.

Background

Because of the uncertainties surrounding the true coverage of the announced Soviet defense budget and the clear evidence based on observable defense activity of a much higher level of ruble outlays, two principal methodologies have arisen for estimating how much the Soviets spend on defense. The first relies on deriving implicit costs from published Soviet economic statistics. The second, used only by CIA because of the large amount of data on Soviet military activities needed to apply it, is the direct-costing or building-block approach. This approach requires the identification and enumeration of physical elements of the defense effort over time and the application of direct-cost factors. Although all methodologies involve uncertainty, we find the building-block approach to be more reliable because it is based on the Intelligence Community's detailed estimates of the physical components that make up the Soviet effort.

We define "defense" differently for different purposes. Our dollar estimates cover those national security activities conducted in the US by the Department of Defense as well as the defense related programs of the Department of Energy and US coast Guard. To understand how the Soviets might view their defense effort we also use a broader definition that also includes civil confident of our estimates of the physical quantities that go into the Soviet defense effort because once the major weapon systems have been produced and deployed, we can measure what is there. Our projection of future weapon production, however, is obviously less certain.

We are somewhat less confident in the prices we use. We have an adequate sample of ruble prices to measure Soviet costs in the base year of those prices--1970. However, over the last dozen years, Soviet prices and cost relationships have undoubtedly undergone considerable change.

The Ruble Estimate

To obtain our rubles estimates of Soviet defense spending, ruble prices are applied to the detailed estimates of physical resources. The procedure is complex but, in general, is as follows:

-- Procurement - For many Soviet weapons we have an actual ruble price. For others we must derive a ruble price either by applying ruble-dollar ratios created for weapons groups or by using cost estimating relations (CERs) that make the price a function of certain performance parameters. The prices are multiplied by our estimates of the physical quantities of weapons used by the Soviet forces.

-- Operating - Personnel costs are calculated by multiplying the estimates of the number of men in each military organization by ruble factors covering each type of personnel-associated outlay. Ruble maintenance costs are derived from knowledge of Soviet operating rates. Operating costs combine our knowledge of Soviet operating rates with rubles costs for utilities, POL, and civilian labor.

-- RDT&E - RDT&E is estimated directly from official Soviet statistics. (For this reason, it is the least certain part of our estimates.)

The results, not including RDT&E, are aggregated by Soviet service, resource category, or military mission.

The Dollar Estimate

The dollar estimates begin with the same set of Soviet physical defense activities as the rubles but instead apply appropriate US dollar prices and wage rates.

-- Procurement - we estimate what it would cost to build the actual Soviet weapons and equipment in the United States at prevailing dollar prices for materials and labor (including overhead and profit), using US production technology and assuming the necessary manufacturing capacity, materials, and labor would be available.

-- Operating - Personnel costs are derived by estimating the military rank of the person in the United States who would be assigned the duties of each Soviet billet and then applying the appropriate US pay and allowance to that billet. O&M costs are derived by applying dollar prices to estimates of labor, materials, spare parts, overhead, and utilities required to operate and maintain equipment the way the Soviets do.

-- RDT&E - To estimate the dollar cost of performing Soviet RDT&E activities in the US, the aggregate ruble figure is converted into dollars.

Once again, the results, not including RDT&E, can be aggregated by service, mission, or resource category.

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Table 1

USSR: GNP by Sector of Origin at Factor Cost
(billion 1970 Rubles)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
GNP*	383.3	459.8	481.8	497.4	514.2	516.1	524.7	536.1	547.0
Industry	122.6	163.6	170.1	177.0	182.8	186.6	191.8	196.6	201.0
Agriculture	81.0	72.0	80.2	83.0	86.0	78.5	74.0	73.7	76.0
Construction	28.0	36.8	38.0	38.9	40.1	40.4	41.3	42.2	42.5
Transportation	33.4	45.8	47.8	48.8	51.1	52.3	54.3	56.4	57.1
Communications	3.3	4.7	5.0	5.3	5.6	5.9	6.2	6.5	6.7
Trade	28.0	35.0	36.3	37.6	38.8	39.6	40.8	41.8	42.1
Services	78.5	92.7	95.0	97.3	100.3	103.2	106.6	109.2	111.6
Other (including military personnel)	8.4	9.3	9.4	9.5	9.6	9.6	9.7	9.8	10.1

* Components may not add exactly to total because of rounding.

Table 2

USSR: GNP by End Use at Factor Cost
(billion 1970 Rubles)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
GNP*	383.3	459.8	481.8	497.4	514.2	516.1	524.7	536.1	547.0
Consumption	207.8	247.3	252.8	260.1	267.8	275.1	283.7	289.5	291.7
goods	133.1	158.6	161.4	166.7	171.2	175.8	181.5	184.9	185.0
services	74.6	88.7	91.4	93.4	96.6	99.4	102.2	104.6	105.7
Investment	108.2	140.6	151.8	159.5	165.5	168.0	172.2	178.5	183.2
Other	67.3	72.0	77.2	77.8	80.9	73.0	68.8	68.1	72.2

* Components may not add exactly to total because of rounding.

Table 3

USSR: Value Added in Industry at Factor Cost
(billion 1970 rubles)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
Industry*	122.6	163.6	170.1	177.0	182.8	186.6	191.8	196.6	201.0
Ferrous metals	8.8	10.7	11.0	11.0	11.3	11.3	11.2	11.2	11.1
Nonferrous metals	4.8	6.4	6.6	6.8	6.9	7.1	7.2	7.3	7.3
Fuel	12.1	15.4	16.0	16.7	17.2	17.7	18.0	18.3	18.7
Electric power	8.3	11.7	12.5	12.9	13.5	13.9	14.6	14.9	15.4
Machinebuilding & metalworking	38.5	56.6	59.9	63.3	66.5	69.3	72.2	74.6	77.5
Chemicals	7.6	11.7	12.3	12.9	13.4	13.4	14.0	14.5	14.8
Wood, pulp, and paper	9.4	10.7	10.7	10.7	10.7	10.3	10.5	10.8	10.9
Construction materials	8.0	10.4	10.8	11.1	11.5	11.0	11.0	11.2	11.0
Light industry	9.8	11.2	11.6	11.9	12.2	12.4	12.7	13.0	13.0
Food industry	11.6	14.1	13.9	14.5	14.3	14.8	14.9	15.2	15.6
Other industry	3.6	4.8	4.9	5.1	5.3	5.4	5.6	5.7	5.8

* Components may not add exactly to total because of rounding.

Table 4

United States and USSR: Production of Selected Commodities in Selected Years

	1970	1975	1978	1980	1981	1982
Primary energy (million b/d oe)						
US	29.5	28.6	28.9	30.5	30.4	30.1
USSR	18.3	23.2	26.6	28.2	29.0	29.8**
Oil* (million b/d)						
US	11.3	10.0	10.3	10.2	10.2	10.3
USSR	7.1	9.8	11.4	12.0	12.2	12.3
Natural Gas (Dry) (trillion cubic feet)						
US	21.0	19.2	19.1	19.6	19.4	17.8
USSR	7.0	10.2	13.1	15.4	16.4	17.7
Coal (million metric tons)						
US	555.8	593.9	608.0	752.7	747.3	756.1
USSR	624.1	701.3	723.6	716.4	704.0	718.0
Electricity (gross) (billion kilowatt-hours)						
US**	1,743	2,131	2,436	2,438	2,448	2,387
USSR	741	1,039	1,202	1,294	1,326	1,366
Iron ore (million metric tons)						
US	91.2	80.1	82.9	70.7	75.5	37.0
USSR	197.1	234.7	246.2	245.0	242.0	244.0
Bauxite (thousand metric tons)						
US	2,125	1,800	1,669	1,559	1,510	700
USSR	6,700	8.000	8,800	9,100	9,100	9,000
Pig iron (million metric tons)						
US	83.0	72.5	79.6	62.3	67.3	39.1
USSR	85.9	103.0	110.7	107.0	108.0	107
Crude steel (million metric tons)						
US	119.3	105.8	124.3	101.5	108.8	65.7
USSR	115.9	141.3	151.5	148.0	149.0	147.0

* Including natural gas liquids.

** Estimated.

Table 4 (cont.)

	1970	1975	1978	1980	1981	1982
Refined copper (thousand metric tons)						
US	2,074	1,632	1,869	1,726	2,026	1684.0
USSR	1,015	1,320	1,460	1,520	1,530	1510.0
Primary aluminum (thousand metric tons)						
US	3,607	3,519	4,358	4,654	4,489	3,274
USSR	1,490	2,130	2,330	2,460	2,475	2,490
Lead (thousand metric tons)						
US	605	577	565	550	500	415
USSR	470	540	580	600	600	560
Refined zinc (thousand metric tons)						
US	866	450	441	370	345	298
USSR	690	820	875	900	900	820
Gold (million troy ounces)						
US	1.7	1.0	1.0	1.0	1.3	1.4
USSR	7.0	8.3	9.5	10.2	10.4	10.6
Synthetic ammonia (million metric tons of N)						
US	10.3	12.2	12.8	14.7	14.2	11.5
USSR	6.3	9.9	11.5	13.8	14.6	15.4
Mineral fertilizer (million metric tons, nutrient content)						
US	14.8	17.1	19.0	22.5	23.2	19.2
USSR	13.1	22.0	23.7	24.8	26.0	26.7
Nitrogen fertilizer (million metric tons of N)						
US	7.6	8.5	9.5	11.2	11.8	10.5
USSR	5.4	8.5	9.3	10.2	10.9	11.2
Plastics (million metric tons)						
US	9.7	10.2	12.4	12.8	13.1	12.4
USSR	1.7	1.8	3.5	3.6	4.1	4.1
Synthetic rubber (million metric tons)						
US	2.2	2.0	2.7	2.2	2.2	1.8
USSR	0.9	1.4	1.8	1.9	1.9	1.8
Woven cotton fabrics						
US (billion linear meters)	5.7	3.7	3.7	3.4	3.6	3.0
USSR (billion square meters)	6.2	6.6	7.0	7.1	7.2	7.1

Table 4 (cont.)

	1970	1975	1978	1980	1981	1982
Tractors (thousands)						
US	191.7	232.0	197.3	155.4	151.0	97.4
USSR	458.5	550.4	576.1	555.0	559.0	555.0
Automobiles (millions)						
US	6.5	6.7	9.2	6.4	6.2	5.0
USSR	0.3	1.2	1.3	1.3	1.3	1.3
Trucks and buses (millions)						
US	1.7	2.3	3.7	[illegible]	1.7	1.9
USSR	0.6	0.8	0.8	0.9	0.9	0.9
Cement (million metric tons)						
US	67.4	61.8	76.2	69.8	66.1	57.5
USSR	95.2	122.1	127.0	125.0	127.0	124.0
Grain (million metric tons)						
US	186.7	249.2	276.5	269.7	333.4	339.0
USSR	186.8	140.1	237.4	189.1	158	180[a]
Wheat (million metric tons)						
US	36.8	57.9	48.3	64.5	76.0	76.4
USSR	99.7	66.2	120.8	98.2	81.0	86[a]
Coarse grain (million metric tons)						
US	146.1	185.5	222.1	198.6	248.9	255.5
USSR[b]	85.8	71.9	114.5	88.3	75.0	83.6
Potatoes (million metric tons)						
US	14.8	14.6	16.6	13.6	13.9	15.6
USSR	96.8	88.7	86.1	67.0	72.0	78.0
Sugar (million metric tons)						
US	5.3	6.0	5.1	5.3	5.6	5.4
USSR	11.1	11.3	13.3	11.0	10.3	13.2
Meat (million metric tons)						
US	22.5	23.0	25.0	24.3	24.5	23.8
USSR	12.3	15.0	15.5	15.0	15.2	15.2
Milk (million metric tons)						
US	53.3	52.3	55.1	58.3	60.2	61.6
USSR	83.0	90.8	94.7	90.9	88.5	90.1
Ginned cotton (thousand metric tons)						
US	2,219	1,808	2,364	2,422	3,426	2,602
USSR	2,343	2,674	2,669	2,858	2,947	2,738

[a] USDA estimate
[b] Excluding rice

Table 5

USSR: Selected Indicators of Agricultural Output

	1970	1975	1976	1977	1978	1979	1980	1981	1982
Value of output[a] (billion rubles)	83.6	82.0	88.6	92.8	95.8	89.8	86.9	87.2	90.0
Commodity Production (million metric tons)									
Grain[b]	186.8	140.1	223.8	195.7	237.4	179.3	189.1	158.0[c]	180.0[d]
Potatoes	96.8	88.7	85.1	83.7	86.1	91.0	67.0	72.1	78.0
Sugar beets	78.9	66.3	99.9	93.1	93.5	76.2	81.0	60.8	71.3
Sunflower seed	6.14	4.99	5.28	5.90	5.33	5.41	4.62	4.68	5.30
Cotton	6.89	7.86	8.28	8.76	8.50	9.16	9.96	9.64	9.28
Vegetables	21.2	23.4	25.0	24.1	27.9	27.2	27.3	27.1	29.2
Meat	12.3	15.0	13.6	14.7	15.5	15.3	15.1	15.2	15.2
Milk	83.0	90.8	89.7	94.9	94.7	93.2	90.9	88.9	90.1
Wool	.419	.467	.435	.459	.467	.478	.461	.460	.460
Eggs (billions)	40.7	57.4	56.2	61.2	64.5	65.8	67.9	70.9	72.1

[a] Net of feed, seed, and waste in constant 1970 prices.

[b] Bunker weight. To be comparable to Western measures, an average reduction of 11 percent is required.

[c] Unofficially reported.

[d] USDA estimate

Table 6

USSR: Freight Turnover by Transport Mode
(billions of ton/kilometers)

Year	Total All Modes	Railroads	Roads	Inland Waterways	Maritime	Pipelines (Oil & Oil Products)	Air
1970	3829.2	2494.7	220.8	174.0	656.1	281.7	1.88
1975	5200.9	3236.5	337.9	221.7	736.3	665.9	2.59
1976	5432.7	3295.4	355.1	222.7	762.2	794.6	2.71
1977	5632.7	3330.9	373.3	230.7	772.6	922.4	2.80
1978	5948.7	3429.4	396.0	243.7	827.6	1049.1	2.86
1979	5986.3	3349.3	409.6	232.7	851.1	1140.7	2.91
1980	6184.2	3439.9	432.1	244.9	848.2	1216.0	3.09
1981	6337.4	3503.2	458.9	255.6	853.4	1263.2	3.08
1982	6328.4	3464.2	464.0	262.5	827.9	1306.8	3.03

Table 7
USSR: Estimated Hard Currency Balance of Payments

(Million current US dollars)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
Current account balance	260	-4,607	-3,216	462	422	2,178	1,904	-100	4,508
Trade balance	-560	-6,297	-5,253	-2,942	-3,690	-2,018	-2,486	-4,000	-992
Exports, f.o.b.	2,424	8,280	10,225	11,863	13,336	19,417	23,584	23,778	26,552
Imports, f.o.b.	2,984	14,577	15,478	14,805	17,026	21,435	26,070	27,778	27,544
Additional military deliveries to LDCs, f.o.b.[a]	400	1,500	1,850	3,220	3,965	3,955	4,200	4,200	5,900
Net interest	-80	-570	-724	-848	-881	-799	-710	-1,300	-1,500
Other invisibles and transfers	500	760	911	1,032	1,028	1,140	900	1,000	1,100
Capital account balance	Negl.	6,522	3,888	2,830	1,734	338	1,628	5,940	-1,270
Gross drawings[b]	NA	6,371	5,495	2,857	3,096	4,474	2,865	6,300	2,600
Government backed	450	1,972	2,450	1,991	2,565	2,410	2,195	2,100	2,800
Commercial	NA	4,399	3,045	866	531	2,064	670	4,200	-200
Repayments	NA	969	1,365	1,955	2,332	2,800	3,051	3,200	3,400
Government backed	160	730	1,035	1,285	1,456	1,702	1,915	2,000	2,100
Commercial	NA	239	330	670	876	1,098	1,136	1,200	1,300
Net change in assets held in Western banks	NA	-395	1,611	-310	1,552	2,826	-234	-140	1,570
Gold sales	Negl.	725	1,369	1,618	2,522	1,490	1,580	2,700	1,100
Net errors and omissions[c]	NA	-1,915	-672	-3,292	-2,156	-2,516	-3,532	-5,840	-3,238

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[a] These estimates exclude the value of arms-related commercial exports included in the reporting on Soviet exports to individual LDCs, which we estimate at about $2 billion in 1981. They are based on the reported export residuals in published Soviet data on trade with LDCs (i.e., the difference between Soviet reported aggregate exports to the LDCs and Soviet reporting on exports to individual LDCs). The export residuals were reduced by the estimated value of Soviet exports of major arms systems to non-hard currency paying LDCs on a f.o.b. basis. The estimates also excludes the value of follow-on services, which may be substantial.

[b] Including additions to short-term debt.

[c] Reflects hard currency assistance to other Communist countries; hard currency trade with other Communist countries; hard currency credits to LDCs to finance Soviet sales of machinery and equipment (including military equipment); and credits to developed Western countries to finance sales of oil and other commodities, as well as errors in other line items of the accounts.

Table 8

USSR: Estimated Hard Currency Debt to the West

(Million US dollars, yearend)

	1975	1976	1977	1978	1979	1980	1981	1982[a]
Gross debt	10,577	14,707	15,609	16,373	18,047	17,861	20,900	20,100
Commercial debt	6,947	9,662	9,858	9,513	10,479	10,013	13,000	11,500
Government and government-backed debt	3,630	5,045	5,751	6,860	7,568	7,848	7,900	8,600
Assets in Western banks	3,127	4,738	4,428	5,980	8,806	8,572	8,430	10,000
Net debt	7,450	9,969	11,181	10,393	9,241	9,289	12,470	10,100

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[a] Provisional estimate.

Table 9

USSR: Foreign Trade by Major Region

(million current rubles)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
al Exports	11,520	24,034	28,022	33,255	35,668	42,426	49,635	57,108	63,165
ommunist Countries	7,530	14,584	16,448	19,101	21,254	23,628	26,903	31,192	34,136
eveloped West	2,154	6,140	7,834	8,817	8,699	12,506	15,862	17,247	18,849
ess Developed Countries[a]	1,836	3,310	3,740	5,337	5,715	6,292	6,870	8,569	10,180
al Imports	10,559	26,671	28,731	30,092	34,556	37,864	44,463	52,631	56,411
ommunist Countries	6,873	13,963	15,104	17,171	20,744	21,427	23,650	26,742	30,816
eveloped West	2,540	9,704	10,822	9,924	10,981	13,248	15,721	18,112	18,892
ess Developed Countries	1,146	2,999	2,805	2,997	2,831	3,189	5,092	7,777	6,703

[a] Including exports of military goods, which rose from an estimated 944 million rubles in 1970 to 5,352 million rubles in 1981 and 6,600 million rubles in 1982.

Table 10

USSR: Average Annual Growth of Per-Capita Consumption

(1970 established prices)

Percent

	1966-70	1971-75	1976	1977	1978	1979	1980	1981	1982[a]
Total consumption	5.1	2.8	1.8	2.3	2.4	2.4	3.0	1.1	-0.7
Food	4.3	1.6	0	1.3	2.0	1.5	2.1	-0.5	-1.0
Soft goods	7.1	3.0	3.6	2.7	2.0	3.5	3.7	1.9	-0.6
Durables	9.1	10.0	5.6	8.0	3.3	3.6	6.7	5.3	-3.5
Services	5.8	4.6	3.8	1.7	3.8	3.8	3.8	2.6	2.1
Housing	2.1	1.7	1.4	1.4	1.4	1.3	1.2	0.8	1.2
Utilities	5.4	5.3	5.1	3.0	3.8	3.3	3.7	2.3	2.9
Transportation	8.0	6.1	5.0	-1.3	3.0	3.6	3.0	2.5	1.2
Communications	7.8	6.3	5.5	4.7	4.5	4.9	4.7	3.7	2.3
Repair and Personal care	8.4	5.7	5.0	4.1	6.2	6.1	6.1	4.4	3.5
Recreation	1.6	0.6	-2.5	-0.4	1.7	0.9	1.9	-0.4	-0.3
Health	3.2	1.4	0.9	0.8	2.9	0.7	0.1	-0.7	0.3
Education	5.8	1.4	1.6	1.2	2.2	1.2	1.7	0	0.1

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[a] Preliminary.

Table 11

United States and USSR: Production of Selected Consumer Goods

	1970	1975	1976	1977	1978	1979	1980	1981	1982
ood									
Grain[a] (kilograms per capita)									
US[b]	910	1,154	1,197	1,208	1,242	1,345	1,184	1,450	1,461
USSR[c]	769	551	872	756	908	681	712	590	667
Meat[d] (kilograms per capita)									
US	110	106	117	114	112	104	107	107	103
USSR	51	59	53	57	59	58	57	57	56
ransportation									
Passenger automobile production[e] (units per hundred persons)									
US	3.19	3.11	3.95	4.18	4.12	3.74	2.81	2.71	2.18
USSR	0.14	0.47	0.48	0.49	0.50	0.50	0.50	0.49	0.48
ousehold equipment									
Washing machine production[e] (units per thousand persons)									
US	20	20	21	23	23	22	20	19	17
USSR	22	13	14	14	14	14	14	15	15
Washing machines in use[f] (units per thousand persons)									
US[g]	194	238	248	256	263	273	280	287	291
USSR	141	189	195	200	203	205	205	205	205
Refrigerator production (units per thousand persons)									
US[e]	26	21	22	26	26	25	23	21	19
USSR	17	22	23	22	23	23	22	22	22
Refrigerators in use[f] (units per thousand persons)									
US[g]	336	340	344	349	349	352	352	352	349
USSR	89	178	194	210	225	240	252	262	268

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[a] The data do not necessarily represent food available for consumption, because imports of foreign grain and exports of domestically produced grain are not included.

[b] Excluding corn silage and forage but including sorghum for grain.

[c] Including miscellaneous grains and pulses. Measured in bunker weight, i.e., gross output from the combine which includes excess moisture, unripe and damaged kernels, weed seeds, and other trash For comparison with US or other country grain output, an average discount of 11 percent should be applied.

[d] Data are on a slaughter weight, bone-in basis.

[e] Data are for factory sales and include complete units exported for assembly.

[f] As of the end of the year.

[g] Data are understated because they are based on the number of households with one or more units; thus, a household with more than one is counted as having only one.

Table 12

USSR: Average Annual Employment by Sector
(thousands)

Sector of the Economy	1970	1975	1980	1981	1982
Total	103,774	113,942	121,990	122,988	123,932
Industry	31,593	34,054	36,891	37,236	37,550
Construction	9,052	10,574	11,240	11,298	11,321
Socialized agriculture	23,440	22,756	21,600	21,300	21,141
Transport and communications	9,315	10,743	11,958	12,172	12,375
Trade, public dining, sales & material technical supply, procurement	7,537	8,857	9,694	9,828	9,880
Health, education, social security, cultural arts, science & scientific services	16,561	19,196	21,515	21,909	22,275
Government administration, credit & insurance organizations	2,226	2,707	3,144	3,218	3,265
Other (housing, personnel services, etc.)	4,050	5,055	5,948	6,027	6,125

Table 13

USSR: Gross Fixed Capital Investment[*]

(Billion rubles, 1973 prices)

	1970	1975	1976	1977	1978	1979	1980	1981	1982
Total investment[**]	80.7	112.9	118.0	122.3	129.7	130.7	133.7	138.8	141.7
of which									
State	69.2	98.0	103.0	106.9	113.9	114.6	117.7	122.7	125.4
Collective farms	7.6	10.7	11.0	11.3	11.6	11.8	11.9	11.9	12.0
Cooperative enterprises and organizations	2.2	2.4	2.3	2.5	2.5	2.5	2.5	2.5	2.7
Private housing and apartments	1.6	1.8	1.7	1.7	1.7	1.7	1.6	1.7	1.6
Industry	28.5	39.7	41.6	43.5	45.6	45.7	47.6	49.9	NA
Agriculture	14.3	23.3	24.3	24.9	25.8	25.3	26.9	27.5	NA
Transport and communications	8.0	12.7	13.3	13.9	16.3	16.2	16.1	16.8	NA
Construction	3.0	4.3	5.0	4.7	5.2	5.3	5.4	5.8	NA
Other	26.9	32.9	33.8	35.3	36.8	37.2	37.7	38.8	NA

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[*] Source: DDI Reference Aid, SOV 82-10093 (Unclassified), August 1982, Soviet Statistics on Capital Formation and N.kh. SSSR, 1922-1982.

[**] Components may not add exactly because of rounding.

Table 14

USSR: Growth of GNP and Factor Productivity
(average annual percentage change)

	1966-70[a]	1971-75[a]	1976-80[a]	1981	1982
Gross national product[b]	5.3	3.7	2.7	2.2	2.0
Combined inputs[c]	4.1	4.2	3.6	3.2	3.1
Manhours	2.0	1.7	1.3	1.0	1.1
Capital	7.4	8.0	6.9	6.7	6.1
Land	-0.3	0.8	Neg.	Neg.	Neg.
Total factor productivity	1.1	-0.5	-0.8	-1.0	-1.0
Manhour productivity	3.2	2.0	1.3	1.2	0.9
Capital productivity	-2.0	-4.0	-4.0	-4.2	-3.8

[a] For computing average annual rates of growth, the base year is the year prior to the stated period

[b] Based on indexes of GNP (1970 rubles), by sector of origin, at factor cost.

[c] Inputs of manhours, capital, and land are combined using weights of 55.8 percent, 41.2 percent, 3.0 percent, respectively, in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages, other income, and social insurance deductions), capital costs (depreciation and a calculated capital charge), and land rent in 1970, the base year for all indexes underlying the growth rate calculations.

Table 15

USSR: Growth of Industrial Output and Factor Productivity
(average annual percentage change)

	1966-70[a]	1971-75[a]	1976-80[a]	1981	1982
Industrial production	6.3	5.9	3.2	2.5	2.2
Combined inputs[b]	5.7	4.9	4.5	4.1	3.6
Manhours	3.1	1.5	1.6	0.9	0.7
Capital	8.8	8.7	7.7	7.8	6.9
Total factor productivity	0.5	1.0	-1.2	-1.6	-1.3
Manhour productivity	3.1	4.4	1.6	1.6	1.5
Capital productivity	-2.3	-2.6	-4.2	-4.9	-4.3

[a]. For computing the average annual rates of growth, the base year is the year prior to the stated period.

[b] Inputs of manhours and capital are combined using weights of 52.4 percent and 47.6 percent, respectively, in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages and social insurance deductions) and capital costs (depreciation and a capital charge) in 1970, the base year for all indexes underlying the growth rate calculations.

SOVIET DEFENSE TRENDS

A Staff Study

Prepared For The Use Of The

SUBCOMMITTEE ON INTERNATIONAL TRADE,
FINANCE, AND SECURITY ECONOMICS

Of The

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

September 1983

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SOVIET DEFENSE TRENDS

By Richard F. Kaufman*

SUMMARY

This study is an attempt to explain the latest conclusions of the intelligence community about the trends in Soviet defense costs and to put them in perspective. The sources relied upon are indicated at the end of the study.

The Central Intelligence Agency reported in early 1983 that the trend in Soviet defense costs measured in dollar equivalents or rubles were different from that previously reported. The growth rate of Soviet defense costs had substantially slowed down. The defense Intelligence Agency agrees with the CIA's dollar cost etimates, but comes to a different conclusion when using its own ruble cost methodology.

The study shows where the two agencies agree and differ and goes on to speculate about the possible causes of the slower growth rate.

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The highlights of the study are:

1. The CIA concludes that the costs of Soviet defense grew at a rate of about 2 percent in real terms during the five-year period 1976-81, compared to a growth rate of 4-5 percent during the previous 10 years.

2. Most of the slowdown took place in procurement, which leveled off during the most recent five-year period. In the past, the rapid growth of procurement was the driving force behind the growth of total defense.

3. The most likely explanation for the slowdown in the growth rate of defense is that problems in the economy, such as transportation bottlenecks, inadequate supplies of steel and energy, and inability to assimilate new technology, had harmful effects on defense production.

4. As Soviet GNP and defense, during the past five years, grew at about the same rate, the CIA concludes that the share of the economy devoted to defense -- the military burden -- did not change during the decade.

5. While the DIA agrees with the CIA's dollar cost estimates, its own current ruble price methodology indicates there was no slowdown in total Soviet defense spending. The DIA finds that Soviet

defense increased by 6-7 percent in nominal terms during the 1970's and that defense procurement growth slowed somewhat from 9-11 percent in the first half of the decade to 6-9 percent in the second half. The DIA also concludes that the Soviet military burden increased from 13-14 percent in 1970 to 14-16 percent in 1981.

6. The DIA's estimates for Soviet defense and GNP have limited utility for policymakers because they are not adjusted for inflation, are based on a definition of Soviet defense that is different from the definition of U.S. defense, and contain wide margins of error. The DIA considers its methodology classified, making it difficult for outsiders to evaluate its measures.

1. Background

The Soviet Union does not disclose the details of its defense budget. Instead, it publishes a single figure in its annual financial report which purports to be its defense expenditures. This figure is known to vastly understate the true size of the Soviet military program. In the absence of complete and reliable official defense budgetary data, the U.S. intelligence community estimates Soviet defense costs through a variety of methods. The most well known are those of the Central Intelligence Agency.

The CIA estimates Soviet defense costs in constant U.S. dollars and constant rubles through what it calls a direct, building-block approach. To estimate defense costs in dollars, information about the physical components and activities of the Soviet defense forces is collected and assigned monetary values in U.S. dollars and the figures are adjusted for estimated inflation. The totals derived indicate how much it would cost in dollars at prevailing U.S. prices and wages to produce and man the Soviet defense program in the United States in a given year. To estimate what Moscow spends in rubles, the CIA combines what it knows about actual ruble costs with conversions into rubles of some of the dollar costs.

More specifically, CIA's dollar cost estimates are developed through a complex procedure involving the identification and listing of Soviet forces and their support apparatuses, divided into more than 1,000 components, including individual classes of surface ships, ground force divisions, and air regiments. Appropriate U.S. prices and wage rates are applied to the detailed estimates of physical resources. The results are aggregated by military mission and resource category.

One of the principal uses of the dollar cost estimates is to compare Soviet total defense costs with U.S. total defense spending. The methodology also allows analyses and comparisons at lower levels of aggregation. For example, the trends in the costs of Soviet ground forces or air regiments can be viewed separately from total defense costs. Soviet allocations for strategic forces or any other category can be compared with similar U.S. allocations. Allocations for geographical areas, such as Europe and the border with China, can be examined.

In addition, the building-block approach is used to estimate the ruble costs of Soviet defense. This is done by applying ruble prices to the detailed, physical description of Soviet forces and activities.

For the ruble costs, most of the Soviet defense program is estimated directly in rubles. The rest is estimated in dollars and converted to rubles with ruble-dollar ratios. Dollar costs are estimated directly for the entire Soviet defense program except research and development which is calculated in rubles and converted to dollars. Again, all building-block estimates are made in constant prices -- that is, adjusted for inflation.

The dollar and ruble estimates are used differently. As stated above, the dollar estimates make it possible to compare U.S. and Soviet defense activities in terms of flows of resources allocated to defense. The ruble estimates provide insights into how Soviet leaders view defense and the burden of defense on the economy.

Supplementary to these direct methods for measuring Soviet defense, there are various indirect methods. These involve analyses of official Soviet statistics, without regard to the physical components of defense forces. They are used primarily by the Defense Intelligence Agency and are discussed later in this paper.

2. Recent Trends: Slowdown in the Growth Rates

CIA's estimates are revised annually to incorporate new information and refinements in the estimating techniques. Previous reports showed Soviet defense costs increasing at a rate that has averaged 3 percent in dollars and 4-5 percent in rubles annually since 1960. However, in its most recent report, the agency found that the trend was different from that previously reported.

According to the CIA, while the dollar costs of Soviet defense activities grew during the early to mid-1970's at an average annual rate of 4 percent, growth continued at a rate of less than 2 percent in the five-year period 1977-81. Soviet spending in rubles exhibits a similar pattern. During 1977-81 ruble spending increased by about 2 percent annually.

With respect to the composition of Soviet defense activities, the slowdown in the growth rate is due to the leveling off in investment costs. Military procurement which had been expanding faster than the rate of total defense scarcely grew in 1977-81.

It has been known that Soviet defense activities grew at below average rates in 1977-78. The expectation was that growth would be higher in 1979-81 due to the usual procurement cycle. The new estimates of production, however, were lower than what had been projected for the period. Because of the reduced production levels, earlier estimates for defense activities in 1980 and 1981 were revised downward, lowering the growth rate for the five-year period.

The figures for weapons production seem to support the conclusion that there has been little growth in military procurement costs. A listing of 25 classes of weapons produced for Soviet forces, excluding transfers to foreign governments, during 1977-81, shows the level of production declined in 13 classes, remained about the same in five classes, and increased in seven classes. Table 1 shows this breakdown.

TABLE 1

MAJOR SOVIET ITEMS OF NEWLY PRODUCED EQUIPMENT FOR SOVIET FORCES
(Soviet Military Production Without Exports)

	1977	1978	1979	1980	1981
Ground force materiel:					
Tanks	2,200	2,000	2,000	2,500	1,400
Other armored vehicles1/	3,700	4,400	4,500	4,800	4,000
SP field artillery	900	400	100	50	150
Towed field artillery	1,000	1,100	1,200	1,000	1,400
Multiple rocket launchers	300	200	200	300	400
SP AA artillery	200	200	100	100	200
Infantry weapons (thousands)2/	349	450	450	398	400
Missiles:					
ICBM's	300	200	200	200	200
IRBM's	100	100	100	100	100
SRBM's	200	250	300	300	300
SLCM's	600	600	700	700	750
SLBM's	175	225	175	175	175
ASM's	1,500	1,500	1,500	1,500	1,500
SAM's1/ 2/	50,000	50,000	50,000	50,000	53,500
ATGM's1/ 2/	35,000	35,000	40,000	50,000	60,000
Aircraft:					
Bombers	30	30	30	30	30
Fighters/fighter bombers	750	950	700	750	750
Transports	350	325	350	350	325
Trainers	10	5	0	0	0
Helicopters	850	600	600	650	650
Communications/ utility	100	100	100	100	25
Naval ships:					
Submarines	10	12	11	12	9
Major combatants	10	10	9	9	7
Minor combatants	27	26	27	33	25
Auxiliaries	6	4	7	8	3

1/ Includes between 600 and 800 vehicles imported yearly from Eastern Europe.

2/ This represents total estimated Soviet production and it is not known what percentage was exported to other Warsaw Pact countries, or Third World countries. It is not believed that more than 2 to 5 percent were exported.

Source: Defense Intelligence Agency

In theory, the cost savings from the reduced quantities could be more than offset by cost increases due to more advanced technology. Doubtlessly, the unit costs of Soviet weapons are rising. But the CIA's building-block approach involves analyzing the costs of each category of military equipment, and the conclusion that procurement costs grew little during this period implies that unit cost increases did not totally eliminate the cost effects of reduced procurement. It would be hard to argue from the defense production data that procurement costs are rising rapidly.

3. U.S. and Soviet Defense Costs in Dollars

Since 1960, U.S. defense outlays total about $3.5 trillion compared with estimated dollar costs for Soviet defense activities of about $3.7 trillion. In the same period, the dollar cost growth rate for Soviet defense averaged about 3.5 percent annually, with no sharp peaks or valleys. U.S. defense outlays surged upwards in the early 1960's and during the Vietnam war and declined in real terms in 1962-64 and during the first half of the 1970's. There was virtually no growth in U.S. outlays in this period.

The pattern in the past 10 years was vastly different. In contrast with Soviet defense costs whose growth rate was slower in the later than in the earlier part of the decade, U.S. outlays declined in 1972-75 but have since grown at an increasing rate.

The contrast is most striking in the area of procurement. U.S. defense procurement outlays declined in 1972-76; Soviet investment costs rose. But while Soviet procurement leveled off in the 1976-81 period, U.S. outlays averaged 7 percent growth.

Measured in dollars, Soviet defense activities were about 20 percent greater than U.S. outlays in 1972, were 55 percent greater in 1976, and in 1981 were 45 percent greater.

4. Limitations of the Estimates

Dollar cost estimates do not measure actual Soviet defense spending or manufacturing efficiences in military industries. Obviously, the Soviets spend rubles, not dollars. Nor do the dollar estimates indicate how the Soviets perceive defense spending. To assess the effects of defense spending on the economy, it is necessary to estimate Soviet spending in rubles.

Dollar cost estimates of Soviet defense activities contain an upward bias. They tend to exaggerate somewhat the true size of the Soviet defense effort relative to the United States. This distortion, called the index number problem, is inherent in all international comparisons of economic activities when measurements are made in only one country's currency. A similar distortion would occur if a Soviet analyst estimated U.S. defense costs in rubles and compared them with Soviet ruble outlays. Such an estimate would exaggerate U.S. defense costs relative to the Soviet Union. To offset the distortion, complementary estimates can be made, measuring costs in the currencies of both countries.

The CIA attempts to make complementary comparisons by estimating U.S. defense costs in rubles and comparing them with

Soviet ruble outlays. As mentioned above, when measured in dollars, Soviet defense costs in 1981 were 45 percent greater than U.S. outlays; when measured in rubles, Soviet costs were only 25 percent greater than U.S. defense costs in rubles. The true ratio of Soviet to U.S. spending is somewhere between 25 and 45 percent, assuming the estimates are correct to begin with.

The CIA believes its dollar costs and ruble estimates of Soviet defense contain a margin of error of plus or minus 10 percent for any year in the past decade. But it has far less confidence in the estimates of U.S. defense costs in rubles. One reason is that, while estimates of what it would cost in dollars to produce Soviet equipment can be obtained from U.S. defense firms, the CIA cannot get estimates from Soviet defense firms of what it would cost in rubles to produce U.S. equipment. The agency's ruble estimates (for the United States) are also far less detailed than its Soviet dollar estimates. Thus there may be a greater margin of error in the ruble comparisons.

The CIA's estimates have been criticized by some analysts for overstating the size of Soviet defense and by others for understating it. A few of the critcisms may be mentioned. Those who believe the dollar cost estimates exaggerate Soviet costs point to the CIA's failure to fully offset the index number problem by not making equally detailed ruble estimates of U.S. defense. It is also argued that valuing Soviet personnel costs at prevailing U.S. wage rates magnifies their relative costs. For example, if only U.S. military personnel pay increases the relative size of total Soviet defense costs also increases in dollar terms because the Soviet Union has more military personnel than the United States. Usually, however, both personnel and equipment costs rise annually.

Those who believe the costs of Soviet defense activities are being understated argue that the CIA undercounts Soviet weapons and that the CIA's approach does not fully adjust for advances in technology. But these arguments have not been substantiated.

An important limitation in the use of the estimates is that defense costs cannot be equated with capabilities; comparisons of military costs or spending are not necessarily indicative of relative military capabilities. The fact that one country spends more or less than another does not mean it is stronger or weaker. In the jargon of economists, cost valuations measure the resources or inputs that are allocated for military forces, and not the effectiveness or output of those forces. The CIA regularly qualifies its findings by setting forth this limitation in its reports and testimony to Congress.

For purposes of military analysis it is sometimes useful to think in terms of flows and stocks. Flows of resources are produced by spending and they influence the stocks or inventories of equipment and other assets. Spending increases usually add to stocks, but not always. Also, the quality and usefulness of the stocks are effected by many factors other than how much is spent for them. It would be incorrect to conclude that military capabilities are automatically increased whenever the rate of spending is increased, or that capabilities are automatically reduced whenever the rate of spending is reduced or slowed down.

The flow of resources is an important but not the only factor to consider.

5. The DIA's Ruble Estimates

The DIA employs the direct dollar cost approach but also uses indirect methods to estimate ruble costs. The CIA uses indirect methods only as a rough check on its building-block ruble estimates, not as a primary estimating technique. The DIA has greater confidence in the indirect methods.

The indirect methods are based in part on official Soviet statistics. In one approach, the DIA estimates Soviet defense spending in current rubles -- that is, unadjusted for inflation -- as a way to duplicate the kind of information it believes Soviet decision-makers consider. Based on the hypothesis that defense has absorbed a constant share of the state budget since 1970, the DIA concludes that Soviet military spending in current rubles rose from 1970 to 1981 at a "nominal" rate -- again, unadjusted for inflation -- of 6 to 7 percent annually, and that Soviet GNP grew by 5 percent in nominal terms during this period. The DIA believes the rate of growth of procurement has slowed somewhat, from 9-11 percent in 1970 to 1975 to about 6-9 percent in 1975 to 1980.

Little has been disclosed about the DIA's methodology, which remains classified, so it is difficult to evaluate the results as to margin of error or level of confidence. The key assumption is that the defense portion of the Soviet state budget has remained constant. The agency states that its current ruble expenditure estimate is based on several statements made by knowledgeable sources concerning the level of Soviet defense spending during the 1960's and 1970's. According to those sources, the share of the state budget devoted to defense was 31-34 percent. DIA believes about the same share was taken by defense in the later years as in the early 1970's. The agency asserts that analysis of Soviet statistical data shows no civilian component that could account for the rapid growth of the budget during the decade.

To test this hypothesis, one would need to know how the state budget is defined, the precise portion spent for defense, and whether the defense portion corresponds with the U.S. definition of defense. The DIA states that it uses the Soviet concept of defense, which it concedes is probably broader than the U.S. concept and may include activities such as the civilian space program, military construction troops, and the internal security forces of the KGB and MVD.

If the Soviet state budget, as viewed by Soviet decision-makers, was changed in scope during the decade, adjustments would have to be made to any ratio based on the assumption that the defense share was constant. Similarly, if Soviet defense activities not included in the U.S. concept of defense were expanding at a more rapid rate than other activities, the results of the DIA's measure could be misleading.

The fact that DIA's current ruble estimates are not adjusted for inflation means it is not possible to know whether real outlays are rising or falling. A rate of 7 percent nominal growth could be 2 percent or 4 percent, or any other rate, depending upon inflation. If inflation was faster in defense than in the rest of the economy, the real growth of defense could have been the same or slower than the growth of GNP.

The DIA believes inflation averaged about 2-3 percent in the USSR during the 1970's. It acknowledges the possibility that inflation was higher in the defense sector than the rest of the economy.

The agency also allows that the current ruble methodology cannot accurately measure annual changes in total Soviet military spending, due to its inherent range of error. The methodology, DIA believes, is most useful in analysis of long-range periods or in analysis of a single year.

Another indirect method attempts to measure military procurement through analysis of Soviet statistics for the machinery and metalworking industry. Most defense production takes place in this industry and some officials believe it is possible to detect the trend by separating nondefense production from the published totals. What remains, the residual, is assumed to be military hardware. One DIA spokesman has assigned a margin of error to this method's absolute measure of Soviet military procurement of plus or minus one-third. While the level of confidence in the estimate of the absolute level of military procurement is low, intelligence analysts place a much higher level of confidence in the residual methodology's estimate of Soviet military procurement trends.

Finally, the indirect methodologies which rely on Soviet statistics, lack the kind of detail and the weapon-by-weapon cost analysis contained in the CIA's estimates. Under the indirect approach, only the level of total ruble spending or total procurement is derived, and these figures cannot be broken down by military mission, resource category, or geographical area. For example, cost estimates for the weapons listed in Table 1 cannot be made with the indirect approach.

6. CIA and DIA Agreement and Differences

The CIA and DIA develop their own estimates of Soviet defense production independently of one another. When they apply CIA's dollar cost methodology to their production estimates, the same trends emerge. In other words, the two agencies are in general agreement about the dollar costs of Soviet defense derived through the building-block methodology.

They disagree over the relative merits of the CIA's constant dollar cost estimates and the DIA's current ruble estimates. The CIA prefers its own constant price dollar and ruble estimates because they are based on the hard evidence of the physical components and activities of the Soviet defense program. The DIA prefers its own current price ruble estimates because they provide insights into how the Soviets themselves look at defense cost trends.

From the CIA's perspective, correct current ruble estimates would be the best evidence of Soviet defense costs, but it is not possible to obtain current ruble estimates in which one can have high confidence. The Soviets go to great lengths to conceal what they spend for defense and the CIA doubts that defense spending can be derived through manipulation of official Soviet statistics.

Both agencies are aware that the dollar cost estimates do not reflect Soviet perceptions of their defense activities. The DIA apparently believes the advantages of using its current ruble estimates outweigh whatever uncertainty surrounds them.

The two agencies conclude that the annual growth of Soviet defense costs, measured in constant dollars, slowed to about 2 percent in the latter part of the 1970's. This rate of growth was about the same as the expansion of the economy in that period, when inflation is taken into account. Under the CIA's direct constant ruble cost approach, the share of Soviet GNP allocated to defense -- the military burden -- did not increase during the decade. The CIA estimates that the military burden, 13-14 percent of GNP, has been unchanged since 1970.

The DIA's current ruble estimates present a different picture. It estimates that ruble spending rose at a nominal rate of 6 to 7 percent annually from 1970 to 1981, and that the Soviet GNP increased during the same period at a nominal rate of about 5 percent annually. Under this approach, the military burden increased during the decade. The DIA estimates that the military burden rose from 13-14 percent in 1970 to 14-16 percent in 1981.

The different conclusions about Soviet defense trends derived through the building-block and indirect methodologies cannot be reconciled. If the CIA is correct, the growth rate of Soviet total defense and procurement slowed significantly and the military burden has not increased. If the DIA is correct, the growth rate of Soviet defense has not slowed, the growth of procurement slowed somewhat, and the military burden has increased.

7. Possible Causes of the Slowdown in the Growth Rate

It has been noted that the leveling off in defense procurement costs accounts for the slowdown in the growth rate of Soviet total defense. What accounts for the leveling off in procurement? One can only speculate, keeping in mind the limitations in the methodologies for estimating defense costs and the problem of correctly assessing what is going on in the rest of the Soviet economy. Soviet leaders may or may not have decreed that the growth rate of total defense spending or defense procurement should be trimmed beginning in 1977, or that resources are being transferred from the defense sector to other sectors of the economy. Barring new revelations that would indicate explicit policy decisions, the question is, what factors might have brought about or contributed to the slower growth rate?

One possibility is that economic constraints have influenced allocations for defense. Some of the same factors that caused the slowdown in the Soviet economy may have held down defense growth. A comparison of Soviet GNP, defense, and military procurement growth rates in the first and second halves of the 1972-81 period suggests a positive correlation. Table 2 compares Soviet GNP and defense growth rates.

TABLE 2

SOVIET GNP AND DEFENSE GROWTH RATES, IN REAL TERMS

1975-1981

(PERCENT CHANGES)

	1966-1976	1976-1981
GNP Growth	3.9	2.2
Total Defense Activities	4.5*	2.0*

* Approximate estimate.

Both Soviet GNP and Defense Growth averaged nearly 4 percent annually in the first part of the period, 1972-1976. In the second half of the period, 1977-1981, GNP growth fell to 2.2 percent and defense growth averaged about 2 percent. The effects of procurement growth on the total defense growth rate can be seen in the fact that in the past the high growth rate of procurement has been the driving force behind the growth of total defense.

The period of the slowdown in defense procurement growth also coincides with the slowdown of total Soviet industrial production and of the machinery and metalworking industry. Again, we do not know whether Soviet officials made a decision to slow the rate of growth in this industry, although Soviet planners reduced the objectives for the growth of total industrial production. The fact that investment in machinery and metalworking increased in absolute terms and as a share of total industrial investment in 1976-1980, compared with 1971-1975 suggests there was no decision to reduce the growth of the machinery industry. Employment in this industry also grew faster than in most other industrial sectors.

Nevertheless, growth of machinery and metalworking output fell in the latter half of the 1970's, from a rate of 7.9 percent in 1971-1975 to 5.4 percent in 1976-1980, and the growth of productivity in this industry also declined. Among the factors that influenced this fall off were the failure of the steel industry to supply the kinds and qualities of steel needed by the machinery industries, inadequate supplies of electric power, oil, and gas, and bottlenecks in rail transportation which held up supplies of raw materials and deliveries of final products among machinery producers.

A related problem that may have slowed defense production concerns the inability of Soviet defense firms to adopt new military technology. Soviet literature is filled with criticism of the inattention to research and obsolescence of equipment in industrial production. Much of the criticism has been concentrated on the machinery industry because of the deficiency of Soviet machine tools, the inferiority of Soviet-made programmed control devices, the underutilization of advanced equipment due partly to the lack of skilled workers, and the inadequate servicing of new equipment. According to a Soviet estimate, during 1976-1979, no more than 1 percent of the Soviet machinery industry's production equipment was modernized. In addition, the Soviets have experienced difficulties in absorbing the transfer of Western technology. It is likely that these problems contributed in some measure to a slowdown in production rates for military equipment.

There are other possible explanations of the growth slowdown. One concerns Soviet trade with the West and the effects of U.S. export restrictions. But as overall Soviet trade with the West rose in the late 1970's, the possibility that trade acted as a constraint on industrial production can be ruled out. In the second half of the decade all categories of imports increased with manufactured goods taking the lion's share.

Soviet imports of equipment and technology may not have had their intended effect in furthering modernization and growth.

The growth of Western imports averaged 17 percent annually during 1976-1980, a rate that was slower than the increase in the previous five years in part because of the inability to absorb Western technology into the industrial sector. U.S. exports to the Soviet Union declined after 1976 but most of those exports were grain and other nonmanufactured goods. The U.S. share of manufactured imports from the industralized West reached a peak of only 7.7 percent in 1976; its share of high technology imports was 12.4 percent in that year. By 1980, Soviet imports from the industrialized West had climbed to $19.8 billion, up from $12.9 billion in 1976. Of the 1980 amount $3.9 billion was foodstuffs (about 25 percent of which came from the U.S.). U.S. exports of manufactured goods and advanced technology have not been large enough to have influenced Soviet industrial production one way or the other.

The Soviet Union stepped up its exports of military equipment in the late 1970's and has become the world's largest arms exporter. During 1977-81, it delivered $35 billion worth of military equipment to foreign governments. It can be argued that these transfers could have been reduced in order to build up Soviet stocks and to that extent were at least an implicit diversion of resources from the Soviet military.

The possibility that the 1977-1981 period was part of a lengthened procurement cycle seems unlikely but cannot be ruled out. Soviet defense growth rates have fluctuated in the past as production of new generations of weapons were phased in. Typically, the slower part of the cycle lasted 2-3 years and were offset by several years of above average growth. A five-year period of below average growth is atypical.

The DIA believes that required growth in the nondefense sectors of the economy could mean slightly smaller increases in defense, in order for defense growth to continue to increase in the long teerm. This conclusion suggests that the slowdown in the defense growth rate may continue for the next several years. Obviously, a decision by the new leadership under Andropov to acelerate procurement could reverse the trend if such a decision was implemented.

Whether arms control constraints contributed to the slowdown is beyond the scope of this paper.

8. Conclusions

It is perhaps inevitable but unfortunate that consumers of Soviet defense cost estimates frequently misuse them. One problem is the tendency of equating the cost estimates with capabilities, misreading Soviet size for strength. Such reasoning confuses resource allocations with military power and has led some persons to unfairly criticize the estimates because they do not coincide with preconceptions about relative American and Soviet strength. Persons of all persuasions tend to misuse the estimates, those who believe the intelligence community understates Soviet defense and those who believe it overstates it, as well as those who accept the estimates at face value.

The tendency of taking the estimates too literally is the most pervasive problem. In view of the margins of error, the low levels of confidence in some of the techniques, and the annual revisions, the estimates should be considered as ranges rather than data points. The trends over time are more important than the year-to-year changes. The CIA rates the margin of error in the dollar cost estimates as plus or minus 10 percent, and says it has far less confidence in portions of the dollar estimates, such as R&D, and in its estimates of the ruble costs of U.S. defense. A DIA spokesman estimated that the margin of error in the indirect method for measuring Soviet military procurement was plus or minus one-third.

It is inappropriate to read the estimates with the certainty that can be attached to the U.S. budget document. In general, far too much military and political importance has been given to the estimates of Soviet defense costs. Their principal value is economic, not military. They measure stocks and flows of resources rather than capabilities and effectiveness. They can be useful for assessing trends, understanding the interaction of the defense sector with the rest of the economy, and making rough comparisons of the sizes of Soviet and American forces. Estimates of what the Soviets actually spend in rubles will always be suspect so long as Moscow maintains its policy of secrecy.

Having said this, it must be noted that the intelligence estimates themselves are adding confusion to an already complex subject. The differences between the dollar cost and ruble estimates are hard to follow and few in Congress understand the different uses of the different types of estimates. It is not possible for an outsider to resolve the questions raised by CIA's constant dollar and constant ruble costs and DIA's current ruble estimates, or to reconcile the dissimilar results.

As DIA is in some sense challenging the significance of the dollar cost estimates, it would be useful for that agency to subject its methodology to outside review so that it may be evaluated. An exhaustive review of the CIA's methodology was recently conducted by an outside panel. Until more is known about DIA's methods for estimating Soviet defense spending in current rubles, members of Congress will be unable to judge the relative merits of the current ruble and constant dollar estimates. Such a review should also evaluate the relative merits of the different methodologies.

The latest CIA estimates are significant because they demonstrate a change in the trend of Soviet defense growth over a five-year period. The period is longer than previous cyclical fluctuations and could represent a medium or longer term phenomenom.

The importance of the trend should not be exaggerated. The Soviets have very large stocks of weapons and supplies and these inventories will continue to grow. The fact that costs are growing at a 2 percent annual rate rather than a 3-4 percent annual rate should be kept in perspective. The burden of defense on the Soviet economy will remain high, in the 14 percent range, although it may not increase if Soviet defense growth and GNP growth proceed at about the same rate. If Soviet GNP growth rises to 3 percent while defense growth remains at 2 percent, the defense burden could decline slightly.

A 2 percent growth rate means that Soviet defense activities are continuing to expand, although at a slower pace. Nonetheless, the slowdown in the growth rate has profound implications for our understanding of the Soviet economy and Soviet policy. For example, assumptions about trade-offs between defense, civilian investment, and consumption should be reexamined in light of the new evidence.

The reasons for the slowdown in the growth rate cannot be known with certainty. The Soviet leadership may not have planned the reduced rate, any more than they planned the slowdown in economic growth. It is likely -- but cannot be proved -- that the defense slowdown is the result of economic constraints. The same factors that led to the slowdown in industrial production probably contributed to the slowdown in defense production. These factors include inadequate deliveries of raw materials and supplies, transportation bottlenecks, energy constraints, shortages of skilled manpower, obsolete equipment, and problems in the production of advanced technology.

The amount of resources provided to the machinery industry in the form of investment and manpower indicates that defense still enjoys a very high priority. But the fact that the growth rate of defense production was allowed to decline suggests that the defense sector is not as insulated from the rest of the economy as has been believed by Western analysts. Soviet leaders may have been unwilling or felt unable to take drastic steps to prevent the slowdown. They apparently did not act to maintain the faster rates of military procurement at the expense of other sectors of the economy. Whether the leadership made an explicit decision to stretch out military procurements cannot be known. Whether the present trend will continue into the 1980's remains to be seen.

Note About Sources

Much of this paper is based upon recent testimony before the Joint Economic Committee by spokesmen for the Central Intelligence Agency and Defense Intelligence Agency, Allocation of Resources in the Soviet Union and China - 1982, Part 8 (1983); the testimony before the Joint Economic Committee by Major General Schuyler Bissell, Deputy Director, DIA, Allocation of Resources in the Soviet Union and China - 1983 (June 28, 1983); and Soviet Military Economic Relations (1982), proceedings of a workshop, Joint Economic Committee. Three classified studies were reviewed: A Comparison of Soviet and U.S. Defense Activities, 1972-81 (February 1983), prepared by the Office of Soviet Analysis of the CIA; USSR: Military Expenditures (February 1983), prepared by the Defense Intelligence Agency; and The Defense Intelligence Agency and Central Intelligence Agency Ruble Estimates of Soviet Defense Expenditures (July 1983), prepared by the Defense Intelligence Agency. Soviet and U.S. Defense Activities, 1971-80: A Dollar Cost Comparison (1981) is an earlier unclassified study prepared by the National Foreign Assessment Center of the CIA.

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